Layered tank
Solar layered tank
Hygienic layered tank
Modular layered tank
Hot water tank

NEW:
NEOPOR AND FLEECE INSULATION SENSOR TERMINAL STRIP ADJUSTABLE FEET
Energy management perfected

Froling has been working on the efficient use of wood as a source of energy for over fifty years. Today the name Froling stands for modern biomass heating technology. Froling firewood, wood chip and pellet boilers can be found successfully in operation all over Europe. All of our products are manufactured in our factories in Austria and Germany, and our extensive service network ensures that we can handle all inquiries quickly.

Flexible applications

Froling tank systems are best used in combination with a pellet or wood chip boiler, but they can also be used with other heat sources such as an oil or gas boiler. An efficient solar panel system can also be integrated into solar layered tanks, the H3 hygienic solar layered tank and the FW modular solar layered tank. The solar power always takes priority thanks to the Froling Lambdatronic intelligent boiler controller management.
New tank systems

**NEW:** FROLING TANK SYSTEMS WITH SENSOR STRIP

Froling layered tanks have a terminal strip for optimal positioning of the sensors. This allows multiple sensors to be positioned at any height and moved without having to empty the tank. The labelling of the sensor strip and corresponding Froling connection diagrams makes the sensors extremely easy to position and offer lots of different options. The tank systems are also ideal for combining with other energy systems.

Correct positioning of the sensors on the terminal strip is crucial for optimal operation of the system!

**NEW:** ADJUSTABLE FEET

**NEW:** LAYER SEPARATING MODULE

**NEW:** SOLAR STATION

For more detailed information about the layer separating module and the solar station see page 27.
Size and function

Generous size for maximum convenience

The use of a storage tank, particularly in combination with a firewood boiler, is advantageous as it results in longer refilling intervals, a longer life, reduced fuel consumption and lower emissions. The required size of the storage tank depends on many factors, so we recommend that an expert carry out the calculations for you.

The use of a storage tank in combination with a pellet or wood chip system is not essential, but it is recommendable as it also offers many advantages such as a reduction in burner starts, a longer life of the system and lower emissions.

NEW: Neopor and fleece insulation

The new Froling tank insulation consists of 80 mm Neopor and 20 mm fleece, resulting in a layer of 100 mm. Neopor® is the latest version of the insulating material Styropor®. The foam polystyrene contains graphite particles which disperse the thermal radiation and thus reduce heat loss. Its thermoconductivity of approx. 0.032 W/(m·K) performs up to 20 percent more effectively than conventional insulation, resulting in around 20% less heat loss (improved energy yield).

Overview of insulation thermoconductivities [W/(m·K)]

The following rule of thumb can be used to make a rough estimate of the storage tank volume:

<table>
<thead>
<tr>
<th>Firewood boiler</th>
<th>Recommended storage tank capacity: approx. 55 - 100 l / kW*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pellet / wood chip systems</td>
<td>Recommended storage tank capacity: approx. 25 - 35 l / kW*</td>
</tr>
</tbody>
</table>

*) Local laws, standards and regulations must also be taken into account when calculating storage tank capacities. Find out more about current legislation in your region at www.froeling.com.
Exact temperature layering in the tank

Precise temperature layering in the tank is crucial for optimal functioning, as it ensures that as much energy as possible can be reused. All Froling layered tanks feature a special layer separator developed for this purpose.

Incoming water (e.g. return) moves up through the layer separator and is then stored in there area where the water has a similar temperature. This ensures that there is an area with constant hot water.

Furthermore, the specially developed layer separator allows exact temperature layering and guarantees maximum energy yield and low running costs.

Comparison of hot water storage systems
Simple integration

**Joined layered tanks**

Thanks to their intelligent measurements, Froling layered tanks can be easily installed in the boiler room. And in rooms with low ceilings, Froling offers even more.

Up to four short slim tanks can be joined together with exact temperature layering in all tanks. Another advantage is the fast and easy assembly with the tanks just 80 mm apart.

The layered tanks can either be set up in a row or at an angle: In this case the connection couplings are fitted to the layered tank in the middle at an angle of 90°.

**Serial connection of layered tanks**

Layered tanks are expanded by connecting layered tanks in series, partly because it is possible to connect layered tanks of different sizes and partly because large distances or obstacles can be overcome. It is also possible to connect a solar system at any time with this option.

Several layered tanks can also be linked in according to the Tichelmann principle. With this type of connection, an optimally regulated system is required to guarantee uniform loading and emptying of all layered tanks.
Efficient systems for all requirements

With its range of storage tank systems, Froling offers the ideal solution for almost any situation. Froling layered tanks make intelligent heating management and optimum heating support possible. If a solar system is to be built in, the Froling solar layered tank, H3 hygienic solar layered tank and FW modular solar layered tank are ideal.

The Unicell NT-S ensures efficient domestic hot water heating, using solar energy if desired. Furthermore, Froling offers compact comprehensive solutions for the boiler room thanks to its hygienic layered tank with integrated domestic hot water element and modular layered tank with fresh water module.
# Types of tank

## Overview of Froling tank systems

<table>
<thead>
<tr>
<th>Layered tank</th>
<th>Solar layered tank</th>
<th>H2 Hygienic layered tank</th>
<th>H3 Hygienic Solar Layered Tank</th>
<th>FW Modular Layered Tank</th>
<th>FW Modular Solar Layered Tank</th>
<th>Unicell NT-S water heater</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Storage of surplus heat</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise temperature layering for high energy yield and affordable operating costs</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Optimal thermal insulation due to all-round CFC-free insulation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Joined tank expansion in confined spaces</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Combination with other heat generators</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Integrated solar power</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Domestic water heating</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hot water tank and layered tank in one</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hot water tank, layered tank and solar tank in one</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

More information on... page 9 page 9 page 13 page 13 page 17 page 17 page 21
Layered tanks and solar layered tanks

The ingenuity is in the detail! Froling’s layered tanks and solar layered tanks feature an impressive heat management concept, with optimal energy intake and withdrawal.

Integration of solar power for heating support

Froling’s solar layered tank also makes it easy to integrate solar power. The tried and tested layer separator system ensures optimum use of solar energy and heating support.
### Technical specifications

1. **Feature:** high-quality insulation *(100 mm)*
   - Neopor and fleece
   - Advantages:
     - optimal thermal insulation
     - low radiant heat losses
     - compliant with fire protection class B2
   - The high-performance insulation with an outer jacket ensures optimum thermal insulation and low radiant heat loss, resulting in maximum efficiency.

2. **Feature:** tried and tested layer separator system
   - Advantages:
     - maximum energy yield
     - high flow rate
   - The tried and tested layer separator system ensures exact temperature layering in the tank, guaranteeing you an ideal energy yield and increased flow rate.

3. **Feature:** high-performance solar element *(only solar layered tanks)*
   - Advantages:
     - Perfect integration of solar power
   - The high-performance solar element ensures that the tank is loaded to full capacity when energy is available from the solar panel system. In case of lack of sun and low temperatures in the solar panel system, these low temperatures are layered at the bottom of the tank resulting in pre-heating of the cold area.
Layered tanks / solar layered tanks

Connection examples

**T4 with layered tank and Unicell water heater**

**S4 Turbo with oil/gas boiler, 2 layered tanks**

**P4 Pellet with solar layered tank and water heater**
Technical specifications - layered tanks

Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>300</th>
<th>500</th>
<th>700</th>
<th>850</th>
<th>1000</th>
<th>1250</th>
<th>1500</th>
<th>1700</th>
<th>2200</th>
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<tbody>
<tr>
<td>D0 Tank ø including insulation</td>
<td>mm</td>
<td>750</td>
<td>850</td>
<td>990</td>
<td>990</td>
<td>1150</td>
<td>1150</td>
<td>1300</td>
<td>1300</td>
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<tr>
<td>D1 Tank ø excluding insulation</td>
<td>mm</td>
<td>550</td>
<td>650</td>
<td>790</td>
<td>790</td>
<td>960</td>
<td>950</td>
<td>1100</td>
<td>1100</td>
</tr>
<tr>
<td>H  Height incl. insulation¹</td>
<td>mm</td>
<td>1470</td>
<td>1690</td>
<td>1640</td>
<td>1950</td>
<td>2163</td>
<td>2000</td>
<td>2257</td>
<td>2120</td>
</tr>
<tr>
<td>H1 Height excl. insulation¹</td>
<td>mm</td>
<td>1430</td>
<td>1650</td>
<td>1600</td>
<td>1910</td>
<td>2123</td>
<td>1960</td>
<td>2217</td>
<td>2080</td>
</tr>
<tr>
<td>H2 Height, flow connection¹</td>
<td>mm</td>
<td>1200</td>
<td>1398</td>
<td>1336</td>
<td>1648</td>
<td>1862</td>
<td>1639</td>
<td>1897</td>
<td>1743</td>
</tr>
<tr>
<td>H3 Height, flow connection¹</td>
<td>mm</td>
<td>1060</td>
<td>1248</td>
<td>1186</td>
<td>1398</td>
<td>1612</td>
<td>1439</td>
<td>1697</td>
<td>1543</td>
</tr>
<tr>
<td>H4 Height, flow connection¹</td>
<td>mm</td>
<td>848</td>
<td>1000</td>
<td>929</td>
<td>1122</td>
<td>1332</td>
<td>1142</td>
<td>1347</td>
<td>1293</td>
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<td>H5 Height, return connection¹</td>
<td>mm</td>
<td>571</td>
<td>643</td>
<td>611</td>
<td>712</td>
<td>801</td>
<td>767</td>
<td>810</td>
<td>834</td>
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<tr>
<td>H6 Height, return connection¹</td>
<td>mm</td>
<td>371</td>
<td>393</td>
<td>405</td>
<td>452</td>
<td>452</td>
<td>510</td>
<td>510</td>
<td>534</td>
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<tr>
<td>H7 Height, return connection¹</td>
<td>mm</td>
<td>221</td>
<td>243</td>
<td>255</td>
<td>252</td>
<td>252</td>
<td>310</td>
<td>310</td>
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<td>Minimum width required</td>
<td>mm</td>
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<td>660</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>960</td>
<td>960</td>
<td>1110</td>
</tr>
<tr>
<td>Minimum store height (=tilting height)</td>
<td>mm</td>
<td>1450</td>
<td>1670</td>
<td>1620</td>
<td>1930</td>
<td>2140</td>
<td>2014</td>
<td>2245</td>
<td>2110</td>
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Technical specifications

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<thead>
<tr>
<th>Technical specifications</th>
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<th>850</th>
<th>1000</th>
<th>1250</th>
<th>1500</th>
<th>1700</th>
<th>2200</th>
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<tr>
<td>Permitted operating pressure bar</td>
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<td></td>
<td></td>
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<tr>
<td>Permitted operating temperature °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (empty) kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Energy efficiency class³ B</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Standing loss S² W</td>
<td>67</td>
<td>68.3</td>
<td>79.6</td>
<td>109.2</td>
<td>132.5</td>
<td>137.9</td>
<td>154.6</td>
<td>176.3</td>
<td>-</td>
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<tr>
<td>Storage losses Qₜ as per EN 12897² kWh/24 h</td>
<td>1.59</td>
<td>1.64</td>
<td>1.91</td>
<td>2.62</td>
<td>3.18</td>
<td>3.31</td>
<td>3.71</td>
<td>4.23</td>
<td>-</td>
</tr>
</tbody>
</table>

¹ If adjustable feet are fitted add 10 – 30 mm to the heights stated below depending on the setting
² As per Commission Delegated Regulation (EU) 814/2013 applies to tanks with Floring tank insulation
### Technical specifications - solar layered tank

1. **Do**: Tank ø including insulation (mm)
   - 700: 990
   - 850: 990
   - 1000: 990
   - 1250: 1150
   - 1500: 1150
   - 1700: 1210
   - 2200: 1300

2. **Di**: Tank ø excluding insulation (mm)
   - 700: 790
   - 850: 790
   - 1000: 790
   - 1250: 950
   - 1500: 950
   - 1700: 1100
   - 2200: 1100

3. **H**: Height incl. insulation (mm)
   - 700: 1640
   - 850: 1950
   - 1000: 2163
   - 1250: 2200
   - 1500: 2257
   - 1700: 2120
   - 2200: 2609

4. **H1**: Height excl. insulation (mm)
   - 700: 1600
   - 850: 1910
   - 1000: 2123
   - 1250: 1960
   - 1500: 2217
   - 1700: 2080
   - 2200: 2569

5. **H2**: Height, flow connection (mm)
   - 700: 1336
   - 850: 1648
   - 1000: 1862
   - 1250: 1639
   - 1500: 1897
   - 1700: 1743
   - 2200: 2228

6. **H3**: Height, solar flow connection (mm)
   - 700: 930
   - 850: 1122
   - 1000: 1332
   - 1250: 1142
   - 1500: 1347
   - 1700: 1293
   - 2200: 1586

7. **H4**: Height, solar return connection (mm)
   - 700: 795
   - 850: 940
   - 1000: 767
   - 1250: 810
   - 1500: 884
   - 1700: 934
   - 2200: 934

8. **H5**: Height, return connection (mm)
   - 700: 612
   - 850: 712
   - 1000: 802
   - 1250: 767
   - 1500: 810
   - 1700: 884
   - 2200: 934

9. **H6**: Height, return/solar return connection (mm)
   - 700: 255
   - 850: 252
   - 1000: 252
   - 1250: 310
   - 1500: 310
   - 1700: 334
   - 2200: 334

10. **H7**: Height, solar flow connection 2nd element (mm)
    - 700: -
    - 850: -
    - 1000: 1232
    - 1250: 1104
    - 1500: 1357
    - 1700: -

11. **H8**: Height, solar return connection 2nd element (mm)
    - 700: -
    - 850: -
    - 1000: 1727
    - 1250: 1639
    - 1500: 1897
    - 1700: -

12. **Minimum width required (mm)**
    - 700: 800
    - 850: 800
    - 1000: 800
    - 1250: 960
    - 1500: 960
    - 1700: 1110
    - 2200: 1110

13. **Minimum store height (tilting height) (mm)**
    - 700: 1620
    - 850: 1930
    - 1000: 2140
    - 1250: 2014
    - 1500: 2245
    - 1700: 2110
    - 2200: 2595

14. **Permitted operating pressure (hot water side) (bar)**
    - 700: 3
    - 850: -
    - 1000: -
    - 1250: -
    - 1500: -
    - 1700: -
    - 2200: -

15. **Permitted operating pressure (solar element) (bar)**
    - 700: -
    - 850: -
    - 1000: -
    - 1250: -
    - 1500: -
    - 1700: -
    - 2200: -

16. **Permitted operating temperature (hot water side) (°C)**
    - 700: 95
    - 850: -
    - 1000: -
    - 1250: -
    - 1500: -
    - 1700: -
    - 2200: -

17. **Permitted operating temperature (solar element) (°C)**
    - 700: 110
    - 850: -
    - 1000: -
    - 1250: -
    - 1500: -
    - 1700: -
    - 2200: -

18. **Heating surface (lower solar element) (m²)**
    - 700: 2.0
    - 850: 2.5
    - 1000: 2.5
    - 1250: 3
    - 1500: 4
    - 1700: 4
    - 2200: 4

19. **Heating surface (upper solar element) (m²)**
    - 700: 1.8
    - 850: 2.4
    - 1000: 2.4
    - 1250: 2.4
    - 1500: 2.4
    - 1700: 2.4
    - 2200: 2.4

20. **Solar collector area (optimum / maximum) (m²)**
    - 700: 6 / 8
    - 850: 8 / 12
    - 1000: 8 / 12
    - 1250: 8 / 12
    - 1500: 12 / 16
    - 1700: 12 / 16
    - 2200: 12 / 16

21. **Weight (empty) (kg)**
    - with 1 solar element
      - 700: 114
      - 850: 138
      - 1000: 148
      - 1250: 205
      - 1500: 240
      - 1700: 278
      - 2200: 320
    - with 2 solar elements
      - 700: -
      - 850: -
      - 1000: 177
      - 1250: 242
      - 1500: 283
      - 1700: -
      - 2200: -

22. **Water capacity (lower solar element) (litres)**
    - 700: 13
    - 850: 16
    - 1000: 16
    - 1250: 18
    - 1500: 24
    - 1700: 24
    - 2200: 24

23. **Water capacity (upper solar element) (litres)**
    - 700: -
    - 850: -
    - 1000: 12
    - 1250: 16
    - 1500: 16
    - 1700: -
    - 2200: -

24. **Standing loss S² (W)**
    - 700: 83.8
    - 850: 113.3
    - 1000: 136.7
    - 1250: 142.1
    - 1500: 158.8
    - 1700: 178.3
    - 2200: -

25. **Standing losses Qst as per EN 12897² (kWh/24 h)**
    - 700: 2.01
    - 850: 2.72
    - 1000: 3.28
    - 1250: 3.41
    - 1500: 3.81
    - 1700: 4.28
    - 2200: -

26. **Storage volume² (litres)**
    - 700: 675
    - 850: 826
    - 1000: 931
    - 1250: 1241
    - 1500: 1403
    - 1700: 1697
    - 2200: 2168

1) If adjustable feet are fitted add 10 – 30 mm to the heights stated below depending on the setting.
2) As per Commission Delegated Regulation (EU) 814/2013 applies to tanks with Froling tank insulation.
Froling’s hygienic tanks combine a layered tank and hot water tank all in one. The volume of the storage tank is large, yet the capacity of the high-performance stainless steel corrugated pipe element is relatively low. Thanks to the highly efficient heat exchanger surface area, the tank provides consistently sufficient fresh hot water of exceptional quality using the flow principle. Guaranteed to be free from legionella bacteria.

The perfect combination

Two additional high-performance solar elements permit efficient integration of solar energy in combination with the H3 hygienic solar layered tank. The corrugated stainless steel hot water pipe element, which runs through the tank, optimally cools the bottom part of the tank by preheating the domestic hot water. The low temperatures at the bottom of the tank enable a low return feed temperature to the collector and thus extremely efficient utilisation of the solar energy irradiation (up to 70% more energy yield depending on the collector type).
## Details and examples

1. **Feature:** high-quality insulation *(100 mm)*
   - **Advantages:**
     - optimal thermal insulation
     - low radiant heat losses
     - **compliant with fire protection class B2**

   The high-performance insulation with an outer jacket ensures optimum thermal insulation and low radiant heat loss, resulting in maximum efficiency.

2. **Feature:** tried and tested temperature control system
   - **Advantages:**
     - maximum energy yield
     - high flow rate

   The tried and tested temperature control system ensures exact temperature layering in the tank, guaranteeing you an ideal energy yield and increased flow rate.

3. **Feature:** stainless steel corrugated pipe element
   - **Advantages:**
     - fresh water guaranteed free from legionella

   The stainless steel corrugated pipe element provides fresh hot water free from legionella using the flow principle. The internal movement means that there is hardly any depositing, even in very hard water areas.

4. **Feature:** two high-performance solar elements
   - **Advantages:**
     - perfect integration of solar power
     - optimal energy yield

   The upper solar element ensures rapid heating of the tank in the hot water area and provides solar energy for heating the domestic hot water. The lower element ensures that the tank is loaded to full capacity when energy is available from the solar panel system. In case of lack of sun and low temperatures in the solar panel system, these low temperatures are layered at the bottom of the tank resulting in pre-heating of the cold area.
### Technical data - H2

**Diagram:**
- S1 - S5: Heating connections
- S6: Cold drinking water connection
- S7: Warm drinking water connection
- S8: Electric heating element connection
- Di = 1 1/2" IT
- Da = 1 1/4" ET

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>500</th>
<th>700</th>
<th>850</th>
<th>1000</th>
<th>1250</th>
<th>1500</th>
<th>1700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do</td>
<td>Tank ø including insulation (mm)</td>
<td>850</td>
<td>990</td>
<td>990</td>
<td>990</td>
<td>1150</td>
<td>1150</td>
</tr>
<tr>
<td>Di</td>
<td>Tank ø excluding insulation (mm)</td>
<td>650</td>
<td>790</td>
<td>790</td>
<td>790</td>
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<tr>
<td>H</td>
<td>Height including insulation (mm)</td>
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<td>1950</td>
<td>2163</td>
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<td>H1</td>
<td>Height excluding insulation (mm)</td>
<td>1650</td>
<td>1600</td>
<td>1910</td>
<td>2123</td>
<td>1960</td>
<td>2217</td>
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<tr>
<td>H2</td>
<td>Height, flow / warm drinking water connection (mm)</td>
<td>1398</td>
<td>1336</td>
<td>1648</td>
<td>1862</td>
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---

1) If adjustable feet are fitted add 10 – 30 mm to the heights stated below depending on the setting
2) As per Commission Delegated Regulation (EU) 814/2013 applies to tanks with Fröling tank insulation
<table>
<thead>
<tr>
<th>Dimension</th>
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<tr>
<td>Do Tank ø including insulation</td>
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<td>990</td>
<td>990</td>
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<td>Di Tank ø excluding insulation</td>
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<td>790</td>
<td>790</td>
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<td>H Height incl. insulation¹</td>
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<td>1960</td>
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<td>H2 Height, flow / warm drinking water connection¹</td>
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<td>1648</td>
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<td>H7 Height, solar flow connection, bottom element¹</td>
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<td>H8 Height, return connection¹</td>
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<td>767</td>
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<td>H9 Height, return, solar return connection, bottom element, cold drinking water¹</td>
<td>mm</td>
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<td>Minimum width required</td>
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<td>Minimum store height (=tilting height)</td>
<td>mm</td>
<td>1620</td>
<td>1930</td>
<td>2140</td>
<td>2014</td>
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</tbody>
</table>

1) If adjustable feet are fitted add 10 – 30 mm to the heights stated below depending on the setting

2) As per Commission Delegated Regulation (EU) 814/2013 applies to tanks with Froeling tank insulation
**H2 / H3 hygienic tank**

### Connection examples

**T4 with H2 hygienic layered tank**

- RBG 3200 / RBG 3200 Touch (optional)
- Room temperature sensor (optional)
- Outside temperature sensor
- Mains 400 V

**H2 hygienic layered tank**

- Flow temperature sensor 1/2 (show connections)
- Mixing valve 1/2
- Heating 1/2
- Pump 1
- Solar isolating valve

**H3 hygienic layered tank**

- Flow temperature sensor 1/2 (show connections)
- Mixing valve 1/2
- Heating 1/2
- Pump 0.2
- Warm water
- Cold water

**Wood chip burner T4**

**Pump assembly**

**Pellet boiler PE1 Pellet**

**Note:**

Customer should fit domestic hot water mixing valve to limit the output temperature of the H3 hygienic solar layered tank: Connections shown in diagram.

---

**PE1 with H3 hygienic solar layered tank**

- RBG 3200 / RBG 3200 Touch (optional)
- Room temperature sensor (optional)
- Outside temperature sensor
- Mains 230 V

**H3 hygienic solar layered tank**

- Flow temperature sensor 1/2 (show connections)
- Mixing valve 1/2
- Heating 1/2
- Pump 0.1
- Solar isolating valve

**Pellet boiler PE1 Pellet**

**Pump assembly OE**

**Note:**

Customer should fit domestic hot water mixing valve to limit the output temperature of the H3 hygienic solar layered tank: Connections shown in diagram.

---

**SP Dual with H3 hygienic solar layered tank**

- RBG 3200 / RBG 3200 Touch (optional)
- Room temperature sensor (optional)
- Outside temperature sensor
- Mains 230 V

**H3 hygienic solar layered tank**

- Flow temperature sensor 1/2 (show connections)
- Mixing valve 1/2
- Heating 1/2
- Pump 0.1
- Solar isolating valve

**Pellet boiler SP Dual**

**Pump assembly Unit**

**Note:**

Customer should fit domestic hot water mixing valve to limit the output temperature of the H3 hygienic solar layered tank: Connections shown in diagram.
Froling modular layered tank and FW modular solar layered tank

Froling’s FW layered tank and new FWM fresh water module are a complete compact solution for the boiler room. The layered tank is available with or without a solar element. They can be used in combination with the full range of Froling tanks to offer optimal solutions for almost any area of use.

The comprehensive solution for the boiler room

The high-performance solar element ensures that the tank is loaded to full capacity when energy is available from the solar panel system. Thanks to the specially-developed temperature control system TCS, the tank enjoys optimum layering thereby resulting in increased flow rate as a result of the constant hot water areas.
Details and examples

1 Feature: high-quality insulation (100 mm)
Advantages: • optimal thermal insulation
• low radiant heat losses
• compliant with fire protection class B2

The high-performance insulation with an outer jacket ensures optimum thermal insulation and low radiant heat loss, resulting in maximum efficiency.

2 Feature: temperature control system TCS
Advantages: • maximum energy yield
• high flow rate

The specially-developed temperature control system TCS ensures optimal temperature layering in the tank. The layered hot water areas ensure high flow rates. The incoming flow of water is decelerated by the temperature control system TCS which results in exact layering. This then leads to constant layering in the hot water areas, resulting in less (primary) energy being used to warm the tank. It also means that lower storage volumes and fewer solar collector areas (in the case of the modular solar layered tank) are required for the hot water supply. The temperature control system TCS ensures optimum energy yield.

3 Feature: high-performance solar element
(only modular solar layered tanks)
Advantages: • perfect integration of solar power
• optimal energy yield

The solar element ensures rapid heating of the tank in the hot water area and provides solar energy for heating the domestic hot water. The solar element ensures that the tank is loaded to full capacity or for pre-heating the cold area when energy is available from the solar panel system.
**Fresh Water Module FWM**

The Froling fresh water module FWM provides constant fresh, hygienic hot water and shows very little loss. Thanks to the flow principle, water coming out of the layered tank is passed through the plate heat exchanger and heated until it reached the predefined hot water temperature. The thermostat ensures the flow temperature in the heat exchanger is set which results in reduced levels of scale formation caused by heat.

**Circulation module (optional)**

The circulation model, which is an optional extra, permits fast preparation of hot water at the tap connections. The circulation pump can either be started using the individually-adjustable timer or when required at the tap itself (e.g. by opening the tap).

**Connection example**

![Diagram of the connection example](image)
### Technical specifications - FW modular layered tank

**Diagram:**

**Dimension Table:**

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<tr>
<th>Dimension</th>
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<td>990</td>
<td>990</td>
<td>1150</td>
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<td>Di Tank ø excluding insulation mm</td>
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<td>950</td>
<td>950</td>
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<td>H Height incl. insulation mm</td>
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<td>2000</td>
<td>2257</td>
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<td>810</td>
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<td>H5 Height, return connection mm</td>
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**Technical specifications table:**

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1) If adjustable feet are fitted add 10 – 30 mm to the heights stated below depending on the setting
2) As per Commission Delegated Regulation (EU) 814/2013 applies to tanks with Froiling tank insulation
## Technical specifications - FW modular solar tank

### Dimensions

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<td>H3 Height, flow connection mm</td>
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<tr>
<td>H4 Height, return connection mm</td>
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<td>810</td>
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<td>H5 Height, return connection mm</td>
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<td>H6 Height, solar return connection, bottom</td>
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<td>H7 Height, flow and return connections mm</td>
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<td>Minimum store height (=tilting height) mm</td>
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### Technical specifications

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<td>Permitted operating temperature hot water side</td>
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<td>Heating surface</td>
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<td>m²</td>
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<td>12 / 16</td>
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</tbody>
</table>

1) If adjustable feet are fitted add 10 – 30 mm to the heights stated depending on the setting
2) As per Commission Delegated Regulation (EU) 814/2013 applies to tanks with Froeling tank insulation
Hot water tank

Unicell NT-S hot water tank

Much energy can be saved not only during heating but also during hot water preparation. In this respect Froling and the Unicell are forging new paths. The vacuum enamelling and magnesium protection anode protect against corrosion and ensure resistance to high temperatures and a long life cycle. Whether it’s an optimal hot water preparation system for every heat boiler or an efficient solar tank, the Froling Unicell is fully versatile and guarantees efficient, hygienic hot water preparation.

Using solar energy for domestic water heating

The Froling Unicell NT-S permits efficient use of solar energy to heat domestic water. The lower element is connected directly to the solar panel system. The upper heating surface provides extra heat, meaning that the solar energy can be used all year round. It is also possible to provide extra heating using an electric heating cartridge, available separately.
Details and examples

1 Feature: high-quality insulation (50 mm)
Advantages: • optimal thermal insulation
• low radiant heat losses

The high-performance insulation with an outer jacket ensures optimum thermal insulation and low radiant heat loss, resulting in maximum efficiency.

2 Feature: large heat exchanger surface area
Advantages: • maximum energy yield
• optimum use of solar energy

When in use as a solar tank, the large lower heating surface is connected to the solar panel system. The upper heating surface provides extra heat, meaning that the solar energy can be used optimally all year round.

When using with a boiler alone, both coils are connected directly to the boiler. The resulting heat exchanger surface area ensures a short loading time and high operating comfort.

3 Feature: connection for electric heating cartridge
When being used as a solar tank, you can provide additional heating with an electric heating cartridge, available separately.

4 Feature: large cleaning access
Advantages: • complete emptying of water
• simple cleaning
## Technical specifications - Unicell NT-S

### Dimensions

<table>
<thead>
<tr>
<th></th>
<th>200</th>
<th>300</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do Tank ø including insulation</td>
<td>mm</td>
<td>610</td>
<td>610</td>
</tr>
<tr>
<td>Di Tank ø excluding insulation</td>
<td>mm</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>H Height of tank including insulation</td>
<td>mm</td>
<td>1227</td>
<td>1703</td>
</tr>
<tr>
<td>H1 Height, warm drinking water connection</td>
<td>mm</td>
<td>1107</td>
<td>1586</td>
</tr>
<tr>
<td>H2 Height, flow connection, top element</td>
<td>mm</td>
<td>1005</td>
<td>1351</td>
</tr>
<tr>
<td>H3 Height, return connection, top element</td>
<td>mm</td>
<td>805</td>
<td>1051</td>
</tr>
<tr>
<td>H4 Height, flow connection, bottom element</td>
<td>mm</td>
<td>735</td>
<td>951</td>
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<tr>
<td>H5 Height, circulation connection</td>
<td>mm</td>
<td>630</td>
<td>646</td>
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<tr>
<td>H6 Height, return connection, bottom element</td>
<td>mm</td>
<td>180</td>
<td>196</td>
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<td>H7 Height, cold drinking water connection</td>
<td>mm</td>
<td>105</td>
<td>110</td>
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<tr>
<td>H8 Height, electronic heating cartridge connection</td>
<td>mm</td>
<td>267 / 420</td>
<td>785 / 512</td>
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<tr>
<td>Minimum width required</td>
<td>mm</td>
<td>1370</td>
<td>1800</td>
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### Technical specifications

<table>
<thead>
<tr>
<th></th>
<th>200</th>
<th>300</th>
<th>500</th>
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</thead>
<tbody>
<tr>
<td>Permitted operating pressure</td>
<td>bar</td>
<td>16 / 10</td>
<td>16 / 10</td>
</tr>
<tr>
<td>Permitted operating temperature</td>
<td>ºC</td>
<td>130 / 95</td>
<td>130 / 95</td>
</tr>
<tr>
<td>Heating surface</td>
<td>m²</td>
<td>0,8 / 1,2</td>
<td>1,1 / 1,8</td>
</tr>
<tr>
<td>Magnesium corrosion protection anode Ø / length</td>
<td>mm</td>
<td>1 1/4&quot;</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>Weight (empty)</td>
<td>kg</td>
<td>580 / 710</td>
<td>605 / 970</td>
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<tr>
<td>Maximum continuous output of element (tv = 45°C)</td>
<td>kW</td>
<td>1,4 / 1,9</td>
<td>1,9 / 8,4</td>
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<tr>
<td>Heating water flow</td>
<td>m³/h</td>
<td>4,38 / 6,02</td>
<td>6,02 / 8,21</td>
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<tr>
<td>Flow capacity (90ºC, tap temperature 45°C)</td>
<td>l/h</td>
<td>B</td>
<td>C</td>
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<tr>
<td>Performance indicator Nᵢ as per DIN DIN 4708</td>
<td>NL</td>
<td>58</td>
<td>76</td>
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<tr>
<td>Water capacity</td>
<td>litres</td>
<td>1,39</td>
<td>1,82</td>
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<tr>
<td>Energy efficiency class¹</td>
<td></td>
<td>199</td>
<td>291</td>
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<tr>
<td>Standing loss S¹</td>
<td>W</td>
<td>80,4</td>
<td>85,9</td>
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<tr>
<td>Standing losses Qₙ₂₀ as per EN 12897¹</td>
<td>kWh/24 h</td>
<td>1,87</td>
<td>2,06</td>
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<tr>
<td>Storage volume¹</td>
<td>litres</td>
<td>202,4</td>
<td>302,9</td>
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</tbody>
</table>

¹) As per Commission Delegated Regulation (EU) 814/2013 applies to tanks with Froling tank insulation
Layer separating module

The layer separating module (optionally with electronic controller) can help you achieve maximum efficiency with your solar panel system. Depending on the solar water temperature, the module automatically switches between the top and bottom half of the storage tank. At a high temperature layering takes place in the top half of the storage tank, and at a low temperature layering takes place in the bottom.

The fitting assembly consists of two high efficiency pumps, one heat exchanger and one three-way switch valve. The solar panel circuit is protected against overpressure by an integrated safety group. The fittings of the heat exchanger system are fully assembled on a base plate and tested for leak-tightness. The assembly is fully insulated.

Solar station

The ideal addition to Froling tank systems with solar integration for optimal use of solar energy. The high efficiency pump comes together with bleeder and safety group as a complete, preassembled unit for the solar panel circuit.
Froling has been the mark of quality for heating with wood and biomass for over 50 years. Today, Froling is recognised in Europe and beyond for highly efficient heating technology used for everything from single family homes to industrial facilities with highly technical demands. We offer a unique product range with up-to-the minute technology and pioneering innovations incorporating experience from over 150,000 operating systems with a capacity range from 7 to 1,000 kW.