

# COMBI 2

## MULTI-HEAT ENERGY BUFFER

### WITH POLYWARM® COATED TANK IN TANK CALORIFIER FOR D.H.W. AND 1 FIXED HEAT EXCHANGER



#### APPLICATION

Heating hot water storage and D.H.W. production.

#### MATERIAL

Buffer tank: Mild steel painted on the outside. Buffer intended for closed circuit installation, so no anti-corrosion treatment is provided.

D.H.W. storage: Mild steel Polywarm® coated (Attestation ACS - SSICA - EN 16421 - WRAS).

#### HEAT EXCHANGER:

Nr. 1 fixed heat exchanger.

#### TECHNICAL DESCRIPTION

Multi-Heat Energy tanks Combi 2 are used in units with a typically discontinuous energy source for double use: heating systems and domestic hot water systems.

#### INSULATION

- HARD: High thermal insulation with ecological polyurethane hard foam. Models 800-1000 available with dismantlable hard foam insulation.

- SOFT (Dismountable): NOFIRE® polyester fleece 100% made of recyclable material, with high thermal insulation. Fire resistance class B-s2d0 according to EN 13501.

Grey PVC external lining, complete with top and flange cover.

#### CATHODE PROTECTION

Chain magnesium anode

#### WARRANTY

5 years (See general sales conditions and warranty)

#### ACCESSORIES AND SPARE PARTS

See Accessories section for the entire list.



#### COMBI 2 WB

| Model       | HARD FOAM INSULATION | D.H.W. STORAGE |         | FIXED HEAT EXCHANGER |         | ENERGY EFFICIENCY CLASS |
|-------------|----------------------|----------------|---------|----------------------|---------|-------------------------|
|             |                      | Volume         | Surface | Volume               | Surface |                         |
|             | Art. Nr.             | [lt]           | [m²]    | [lt]                 | [m²]    |                         |
| <b>500</b>  | 3270162314101        | 99             | 1,1     | 11,5                 | 1,9     | <b>C</b>                |
| <b>600</b>  | 3270162314102        | 146            | 1,3     | 18                   | 2,8     | <b>C</b>                |
| <b>800</b>  | 3270162314103        | 191            | 1,6     | 20                   | 3,1     | <b>B</b>                |
| <b>1000</b> | 3270162314104        | 226            | 1,8     | 24                   | 3,7     | <b>C</b>                |
| <b>1500</b> | 3270162314105        | 412            | 2,5     | 32                   | 4,9     | <b>C</b>                |
| <b>2000</b> | 3270162314106        | 566            | 3,1     | 35                   | 5,4     | <b>B</b>                |

#### COMBI 2 WC

| Model       | DISMOUNTABLE SOFT FLEECE INSULATION | D.H.W. STORAGE |         | FIXED HEAT EXCHANGER |         | ENERGY EFFICIENCY CLASS |
|-------------|-------------------------------------|----------------|---------|----------------------|---------|-------------------------|
|             |                                     | Volume         | Surface | Volume               | Surface |                         |
|             | Art. Nr.                            | [lt]           | [m²]    | [lt]                 | [m²]    |                         |
| <b>800</b>  | 3270162284112                       | 191            | 1,6     | 20                   | 3,1     | <b>C</b>                |
| <b>1000</b> | 3270162284113                       | 226            | 1,8     | 24                   | 3,7     | <b>C</b>                |
| <b>1500</b> | 3270162284114                       | 412            | 2,5     | 32                   | 4,9     | <b>C</b>                |
| <b>2000</b> | 3270162284115                       | 566            | 3,1     | 35                   | 5,4     | <b>C</b>                |

## ACCESSORIES

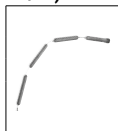
#### Thermometer

| Art. Nr.      |  |
|---------------|--|
| 5032240000107 |  |
| 5 units box   |  |



#### Chain magnesium anode (Connection 3/4")

| Art. Nr.                                   | For models |
|--------------------------------------------|------------|
| 5200000041007                              | 800÷2000   |
| 5200000041016                              | 500,600    |
| N° 2 chain anodes + insulated cap + gasket |            |



#### Buffer tanks connecting kit

| Art. Nr.                                                   | Connection |
|------------------------------------------------------------|------------|
| 5006170001001                                              | 1" 1/2     |
| Stainless steel extensible connecting kit - (200 ÷ 400 mm) |            |

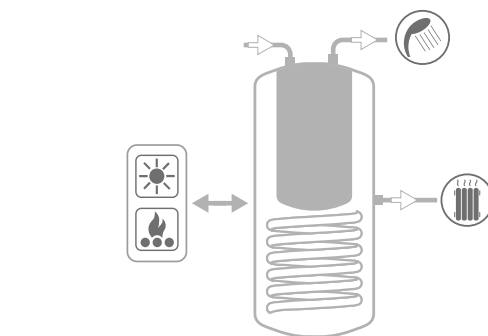
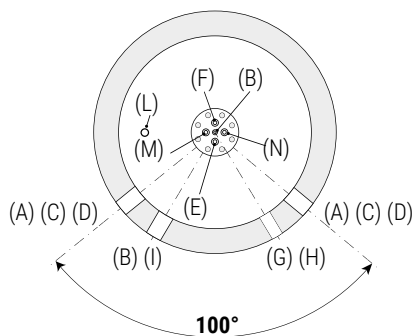
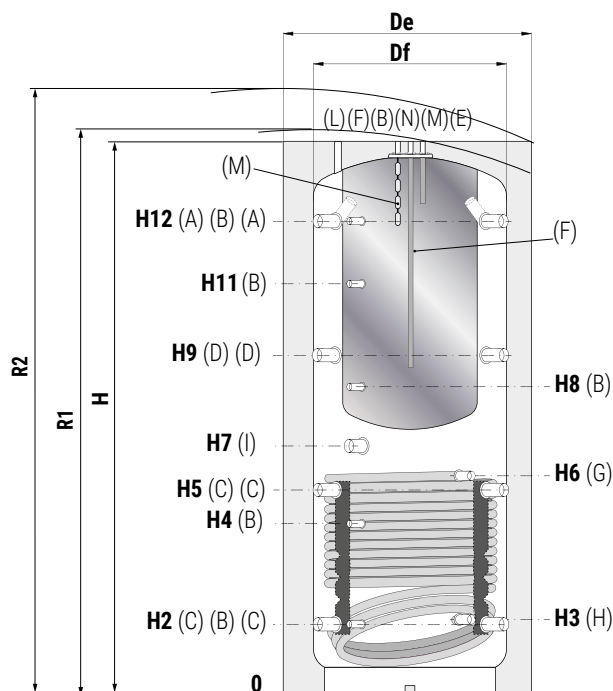


# COMBI 2

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WITH POLYWARM® COATED TANK IN TANK CALORIFIER FOR D.H.W. AND 1 FIXED HEAT EXCHANGER

| TECHNICAL STORAGE |       | D.H.W. STORAGE |       | FIXED HEAT EXCHANGER |        |
|-------------------|-------|----------------|-------|----------------------|--------|
| Pmax              | Tmax  | Pmax           | Tmax  | Pmax                 | Tmax   |
| 3 bar             | 99 °C | 6 bar          | 90 °C | 12 bar               | 110 °C |



**A** Heating delivery/From generator 1"1/2 G F

**B** Connection for instrumentation 1/2" G F

**C** Heating return/to generator 1"1/2 G F

**D** Heating delivery 1"1/2 G F

**E** Domestic hot water outlet 3/4" G F

**F** Domestic cold water circuit inlet 3/4" G F

**G** Fixed heat exchanger inlet 1" G F

**H** Fixed heat exchanger outlet 1" G F

**I** Connection for electric immersion heater 1"1/2 G F

**L** Air purge 1/2" G F

**M** Connection for magnesium anode 3/4" G F

**N** Recirculation 3/4" G F



Dismountable insulation

### COMBI 2 WB - HARD FOAM INSULATION

| Model       | Volume [lt] | Df  | De   | H    | R1   | R2   | H2  | H3  | H4  | H5  | H6   | H7   | H8   | H9   | H11  | H12  |
|-------------|-------------|-----|------|------|------|------|-----|-----|-----|-----|------|------|------|------|------|------|
| <b>500</b>  | 478         | //  | 750  | 1670 | //   | 1835 | 247 | 260 | 533 | 629 | 744  | 841  | 940  | 1011 | 1231 | 1343 |
| <b>600</b>  | 560         | //  | 750  | 1920 | //   | 2070 | 247 | 260 | 582 | 695 | 855  | 915  | 1060 | 1144 | 1382 | 1593 |
| <b>800</b>  | 805         | 790 | 950  | 1855 | 1900 | 2120 | 265 | 278 | 584 | 690 | 762  | 823  | 988  | 1115 | 1332 | 1541 |
| <b>1000</b> | 946         | 790 | 950  | 2150 | 2180 | 2380 | 265 | 284 | 656 | 787 | 953  | 998  | 1188 | 1309 | 1588 | 1831 |
| <b>1500</b> | 1454        | //  | 1100 | 2280 | //   | 2590 | 313 | 336 | 736 | 845 | 1006 | 1061 | 1286 | 1377 | 1653 | 1909 |
| <b>2000</b> | 1973        | //  | 1300 | 2345 | //   | 2715 | 347 | 370 | 770 | 879 | 1001 | 1060 | 1300 | 1411 | 1687 | 1943 |

### COMBI 2 WC - DISMOUNTABLE SOFT FLEECE INSULATION

| Model       | Volume [lt] | Df   | De   | H    | R1   | R2   | H2  | H3  | H4  | H5  | H6   | H7   | H8   | H9   | H11  | H12  |
|-------------|-------------|------|------|------|------|------|-----|-----|-----|-----|------|------|------|------|------|------|
| <b>800</b>  | 805         | 790  | 1010 | 1855 | 1900 | 2090 | 265 | 278 | 584 | 690 | 762  | 823  | 988  | 1115 | 1332 | 1541 |
| <b>1000</b> | 946         | 790  | 1010 | 2150 | 2180 | 2355 | 265 | 284 | 656 | 787 | 953  | 998  | 1188 | 1309 | 1588 | 1831 |
| <b>1500</b> | 1454        | 950  | 1210 | 2280 | 2315 | 2540 | 313 | 336 | 736 | 845 | 1006 | 1061 | 1286 | 1377 | 1653 | 1909 |
| <b>2000</b> | 1973        | 1100 | 1360 | 2345 | 2400 | 2690 | 347 | 370 | 770 | 879 | 1001 | 1060 | 1300 | 1411 | 1687 | 1943 |

# COMBI

## D.H.W. STORAGE PERFORMANCES



| Model      | COMPLETE HEATED STORAGE VOLUME |                       |                                                                                               |                                                                                   | UPPER PART HEATED STORAGE VOLUME                                                              |                                                                                   |
|------------|--------------------------------|-----------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|            | DHW Volume                     | DHW exchanger surface | Max flowrate of sanitary water sustained from 10°C to 45°C with storage at 65°C and boiler on | Max sanitary water produced from 10°C to 45°C with storage at 65°C and boiler off | Max flowrate of sanitary water sustained from 10°C to 45°C with storage at 65°C and boiler on | Max sanitary water produced from 10°C to 45°C with storage at 65°C and boiler off |
|            | [lt]                           | [m²]                  | [lt/min]                                                                                      | [lt]                                                                              | [lt/min]                                                                                      | [lt]                                                                              |
| <b>500</b> | 99                             | 1,1                   | 2,5                                                                                           | 10 lt/min: 198 lt                                                                 | 1,57                                                                                          | 10 lt/min: 148 lt                                                                 |
|            |                                |                       |                                                                                               | 25 lt/min: 176 lt                                                                 |                                                                                               | 25 lt/min: 132 lt                                                                 |
| <b>600</b> | 146                            | 1,3                   | 3,0                                                                                           | 10 lt/min: 239 lt                                                                 | 1,86                                                                                          | 10 lt/min: 179 lt                                                                 |
|            |                                |                       |                                                                                               | 25 lt/min: 213 lt                                                                 |                                                                                               | 25 lt/min: 160 lt                                                                 |
| <b>800</b> | 191                            | 1,6                   | 3,5                                                                                           | 10 lt/min: 320 lt                                                                 | 2,17                                                                                          | 10 lt/min: 240 lt                                                                 |
|            |                                |                       |                                                                                               | 25 lt/min: 280 lt                                                                 |                                                                                               | 25 lt/min: 210 lt                                                                 |

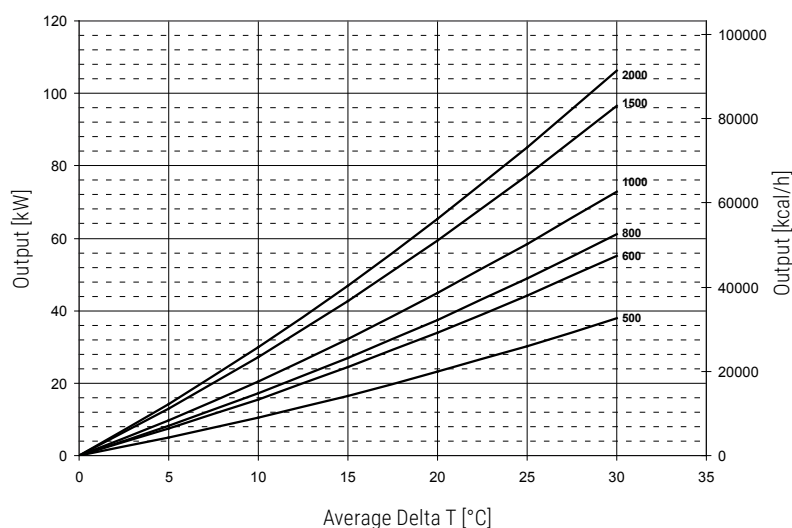
## LOWER HEAT EXCHANGER POWER COMBI 2 - COMBI 3

Output of the Combi 2 - Combi 3 lower heat exchangers depending on the average DeltaT between primary and accumulation considering flow rate 3 m³/h.

Thermal output is given in both kW or kcal/h in terms of average temperature difference between primary and secondary circuit, all for a range of primary 3 m³/h.

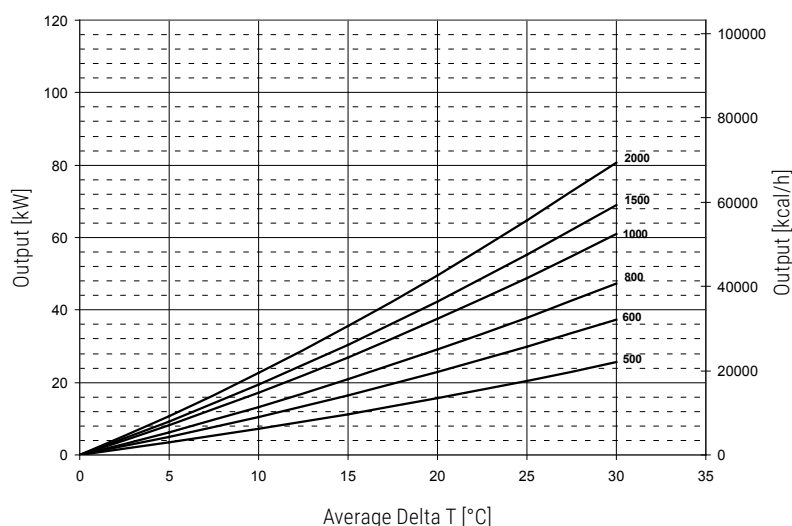
For example, a 1000 liters COMBI 2 with a water flow of 3 m³/h at 80 °C inlet and outlet at 70 °C, has on the storage of water an average temperature of 60 °C, the main difference of temperature will be:

$(80 + 70) / 2 - 60 = 15$  °C and therefore you can exchange up to approximately 32 kW.



## UPPER HEAT EXCHANGER POWER COMBI 3

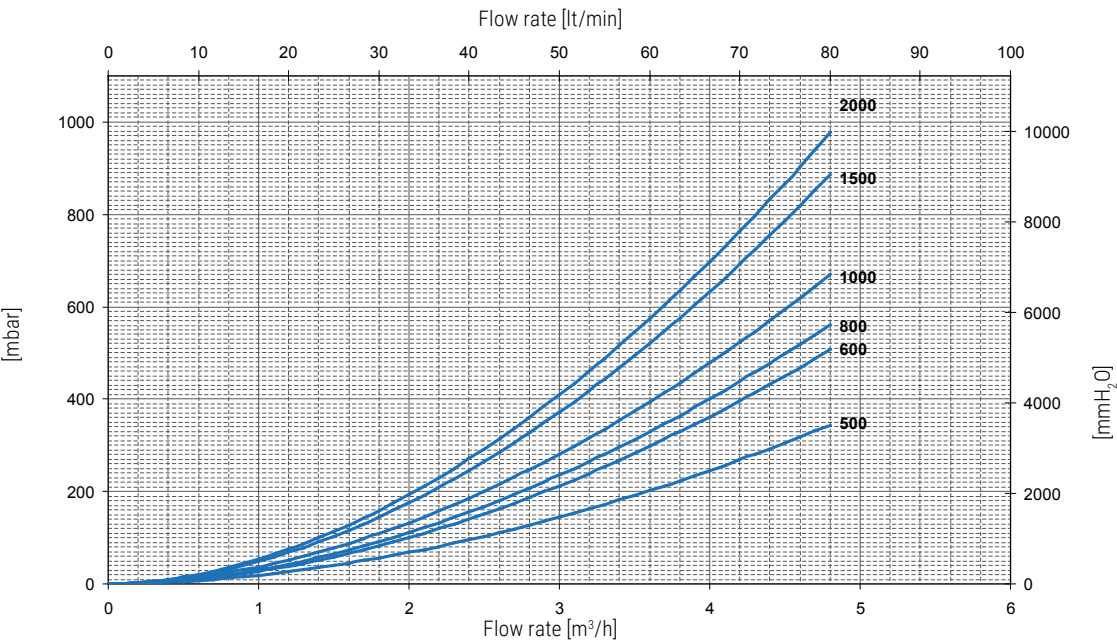
Output of the Combi 3 upper heat exchangers depending on the average DeltaT between primary and accumulation considering flow rate 3 m³/h.





| Model | COMPLETE HEATED STORAGE VOLUME |                       |                                                                                               |                                                                                   | UPPER PART HEATED STORAGE VOLUME                                                              |                                                                                   |
|-------|--------------------------------|-----------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|       | DHW Volume                     | DHW exchanger surface | Max flowrate of sanitary water sustained from 10°C to 45°C with storage at 65°C and boiler on | Max sanitary water produced from 10°C to 45°C with storage at 65°C and boiler off | Max flowrate of sanitary water sustained from 10°C to 45°C with storage at 65°C and boiler on | Max sanitary water produced from 10°C to 45°C with storage at 65°C and boiler off |
|       | [lt]                           | [m²]                  | [lt/min]                                                                                      | [lt]                                                                              | [lt/min]                                                                                      | [lt]                                                                              |
| 1000  | 226                            | 1,8                   | 4,1                                                                                           | 10 lt/min: 389 lt                                                                 | 2,26                                                                                          | 10 lt/min: 291 lt                                                                 |
|       |                                |                       |                                                                                               | 25 lt/min: 330 lt                                                                 |                                                                                               | 25 lt/min: 250 lt                                                                 |
| 1500  | 412                            | 2,5                   | 5,6                                                                                           | 10 lt/min: 753 lt                                                                 | 3,36                                                                                          | 10 lt/min: 565 lt                                                                 |
|       |                                |                       |                                                                                               | 25 lt/min: 614 lt                                                                 |                                                                                               | 25 lt/min: 461 lt                                                                 |
| 2000  | 566                            | 3,1                   | 6,8                                                                                           | 10 lt/min: 1083 lt                                                                | 4,08                                                                                          | 10 lt/min: 812 lt                                                                 |
|       |                                |                       |                                                                                               | 25 lt/min: 852 lt                                                                 |                                                                                               | 25 lt/min: 639 lt                                                                 |

LOWER HEAT EXCHANGER PRESSURE DROP COMBI 2 - COMBI 3



UPPER HEAT EXCHANGER PRESSURE DROP COMBI 3

