

# 13 ENERGY CLASSIFICATION

## 13.1 TECHNICAL PARAMETERS FOR MIXED BOILERS (IN COMPLIANCE WITH REGULATION 813/2013)

The values in the following tables refer to the maximum heating output.

|   |               |  |      |  |            |                                       |          |    |
|---|---------------|--|------|--|------------|---------------------------------------|----------|----|
| Model(s):   |               |  |      | Pro Tec Plus 50  |            |                                       |          |    |
| Condensing boiler:  |               |  |      | YES  |            |                                       |          |    |
| Low-temperature boiler:   |               |  |      | NO   |            |                                       |          |    |
| B1 boiler:  |               |  |      | NO   |            |                                       |          |    |
| Cogeneration space heater:  |               |  |      | NO   |            | Equipped with a supplementary heater: |          | NO |
| Combination heater:   |               |  |      | NO   |            |                                       |          |    |
| Item  | Symbol        | Value  | Unit | Item   | Symbol     | Value                                 | Unit     |    |
| Rated heat output   | $P_n$         | 50   | kW   | Seasonal space heating energy efficiency                                   | $\eta_s$   | 92                                    | %        |    |
| For boiler space heaters and boiler combination heaters: useful heat output   |               |  |      | For boiler space heaters and boiler combination heaters: Useful efficiency |            |                                       |          |    |
| At rated heat output and high temperature regime (*)  | $P_4$         | 49.9   | kW   | At rated heat output and high temperature regime (*)                       | $\eta_4$   | 87.7                                  | %        |    |
| At 30% of rated heat output and low temperature regime (**)   | $P_1$         | 15.0   | kW   | At 30% of rated heat output and low temperature regime (**)                | $\eta_1$   | 96.4                                  | %        |    |
| Auxiliary electricity consumption   |               |  |      | Other items  |            |                                       |          |    |
| At full load  | $e_{l_{max}}$ | 0.091  | kW   | Standby heat loss  | $P_{stby}$ | 0.091                                 | kW       |    |
| At part load  | $e_{l_{min}}$ | 0.018  | kW   | Ignition burner power consumption  | $P_{ign}$  | 0.00                                  | kW       |    |
| In standby mode   | $P_{SB}$      | 0.006  | kW   | Emissions of nitrogen oxides   | $NO_x$     | 36                                    | mg / kWh |    |
| For combination heaters:  |               |  |      |  |            |                                       |          |    |
| Declared load profile   |               |  |      | Water heating energy efficiency  |            | $\eta_{WH}$                           | %        |    |
| Daily electricity consumption   |               | $Q_{elec}$   | kWh  | Daily fuel consumption   |            | $Q_{fuel}$                            | kWh      |    |
| Contact details   |               | Alpha Therm Ltd., Nepicar House, Wrotham Heath, Kent. TN15 7RS |      |  |            |                                       |          |    |
| (*) High temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.                   |               |  |      |  |            |                                       |          |    |
| (**) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature. |               |  |      |  |            |                                       |          |    |

|   |               |  |      |  |            |                                       |          |    |
|---|---------------|--|------|--|------------|---------------------------------------|----------|----|
| Model(s):   |               |  |      | Pro Tec Plus 70  |            |                                       |          |    |
| Condensing boiler:  |               |  |      | YES  |            |                                       |          |    |
| Low-temperature boiler:   |               |  |      | NO   |            |                                       |          |    |
| B1 boiler:  |               |  |      | NO   |            |                                       |          |    |
| Cogeneration space heater:  |               |  |      | NO   |            | Equipped with a supplementary heater: |          | NO |
| Combination heater:   |               |  |      | NO   |            |                                       |          |    |
| Item  | Symbol        | Value  | Unit | Item   | Symbol     | Value                                 | Unit     |    |
| Rated heat output   | $P_n$         | 68   | kW   | Seasonal space heating energy efficiency                                   | $\eta_s$   | 92                                    | %        |    |
| For boiler space heaters and boiler combination heaters: useful heat output   |               |  |      | For boiler space heaters and boiler combination heaters: Useful efficiency |            |                                       |          |    |
| At rated heat output and high temperature regime (*)  | $P_4$         | 68.0   | kW   | At rated heat output and high temperature regime (*)                       | $\eta_4$   | 87.7                                  | %        |    |
| At 30% of rated heat output and low temperature regime (**)   | $P_1$         | 20.4   | kW   | At 30% of rated heat output and low temperature regime (**)                | $\eta_1$   | 96.6                                  | %        |    |
| Auxiliary electricity consumption   |               |  |      | Other items  |            |                                       |          |    |
| At full load  | $e_{l_{max}}$ | 0.098  | kW   | Standby heat loss  | $P_{stby}$ | 0.143                                 | kW       |    |
| At part load  | $e_{l_{min}}$ | 0.028  | kW   | Ignition burner power consumption  | $P_{ign}$  | 0.00                                  | kW       |    |
| In standby mode   | $P_{SB}$      | 0.004  | kW   | Emissions of nitrogen oxides   | $NO_x$     | 22                                    | mg / kWh |    |
| For combination heaters:  |               |  |      |  |            |                                       |          |    |
| Declared load profile   |               |  |      | Water heating energy efficiency  |            | $\eta_{WH}$                           | %        |    |
| Daily electricity consumption   |               | $Q_{elec}$   | kWh  | Daily fuel consumption   |            | $Q_{fuel}$                            | kWh      |    |
| Contact details   |               | Alpha Therm Ltd., Nepicar House, Wrotham Heath, Kent. TN15 7RS |      |  |            |                                       |          |    |
| (*) High temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.                   |               |  |      |  |            |                                       |          |    |
| (**) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature. |               |  |      |  |            |                                       |          |    |

The values in the following tables refer to the maximum heating output.

|   |            |       |      |  |            |                                       |          |    |
|---|------------|-------|------|--|------------|---------------------------------------|----------|----|
| Model(s):   |            |       |      | Pro Tec Plus 90  |            |                                       |          |    |
| Condensing boiler:  |            |       |      | YES  |            |                                       |          |    |
| Low-temperature boiler:   |            |       |      | NO   |            |                                       |          |    |
| B1 boiler:  |            |       |      | NO   |            |                                       |          |    |
| Cogeneration space heater:  |            |       |      | NO   |            | Equipped with a supplementary heater: |          | NO |
| Combination heater:   |            |       |      | NO   |            |                                       |          |    |
| Item  | Symbol     | Value | Unit | Item   | Symbol     | Value                                 | Unit     |    |
| Rated heat output   | $P_n$      | 90    | kW   |  |            |                                       |          |    |
| For boiler space heaters and boiler combination heaters: useful heat output |            |       |      | For boiler space heaters and boiler combination heaters: Useful efficiency |            |                                       |          |    |
| At rated heat output and high temperature regime (*)                        | $P_4$      | 90.0  | kW   | At rated heat output and high temperature regime (*)                       | $\eta_4$   | 87.8                                  | %        |    |
| At 30% of rated heat output and low temperature regime (**)                 | $P_1$      | 27.0  | kW   | At 30% of rated heat output and low temperature regime (**)                | $\eta_1$   | 97.1                                  | %        |    |
| Auxiliary electricity consumption   |            |       |      | Other items  |            |                                       |          |    |
| At full load  | $el_{max}$ | 0.143 | kW   | Standby heat loss  | $P_{stby}$ | 0.145                                 | kW       |    |
| At part load  | $el_{min}$ | 0.021 | kW   | Ignition burner power consumption  | $P_{ign}$  | 0.00                                  | kW       |    |
| In standby mode   | $P_{SB}$   | 0.005 | kW   | Emissions of nitrogen oxides   | $NO_x$     | 18                                    | mg / kWh |    |
| For combination heaters:  |            |       |      |  |            |                                       |          |    |
| Declared load profile   |            |       |      | Water heating energy efficiency  |            | $\eta_{WH}$                           | %        |    |
| Daily electricity consumption   |            |       |      | Daily fuel consumption   |            | $Q_{fuel}$                            | kWh      |    |
| Contact details   |            |       |      | Alpha Therm Ltd., Nepicar House, Wrotham Heath, Kent. TN15 7RS             |            |                                       |          |    |

(\*) High temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.

(\*\*) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature.

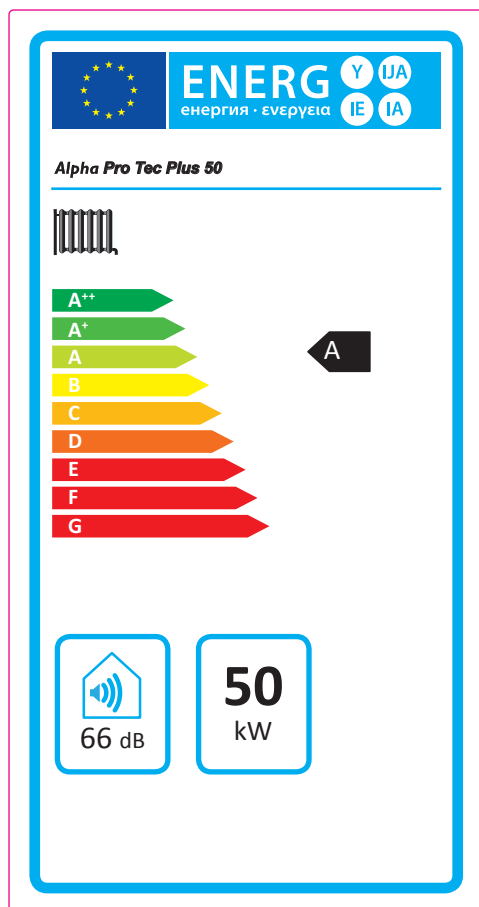
|   |            |       |      |  |            |                                       |          |    |
|---|------------|-------|------|--|------------|---------------------------------------|----------|----|
| Model(s):   |            |       |      | Pro Tec Plus 115   |            |                                       |          |    |
| Condensing boiler:  |            |       |      | YES  |            |                                       |          |    |
| Low-temperature boiler:   |            |       |      | NO   |            |                                       |          |    |
| B1 boiler:  |            |       |      | NO   |            |                                       |          |    |
| Cogeneration space heater:  |            |       |      | NO   |            | Equipped with a supplementary heater: |          | NO |
| Combination heater:   |            |       |      | NO   |            |                                       |          |    |
| Item  | Symbol     | Value | Unit | Item   | Symbol     | Value                                 | Unit     |    |
| Rated heat output   | $P_n$      | 111.0 | kW   |  |            |                                       |          |    |
| For boiler space heaters and boiler combination heaters: useful heat output |            |       |      | For boiler space heaters and boiler combination heaters: Useful efficiency |            |                                       |          |    |
| At rated heat output and high temperature regime (*)                        | $P_4$      | 111.0 | kW   | At rated heat output and high temperature regime (*)                       | $\eta_4$   | 87.7                                  | %        |    |
| At 30% of rated heat output and low temperature regime (**)                 | $P_1$      | 33.3  | kW   | At 30% of rated heat output and low temperature regime (**)                | $\eta_1$   | 96.9                                  | %        |    |
| Auxiliary electricity consumption   |            |       |      | Other items  |            |                                       |          |    |
| At full load  | $el_{max}$ | 0.190 | kW   | Standby heat loss  | $P_{stby}$ | 0.168                                 | kW       |    |
| At part load  | $el_{min}$ | 0.025 | kW   | Ignition burner power consumption  | $P_{ign}$  | 0.00                                  | kW       |    |
| In standby mode   | $P_{SB}$   | 0.004 | kW   | Emissions of nitrogen oxides   | $NO_x$     | 28                                    | mg / kWh |    |
| For combination heaters:  |            |       |      |  |            |                                       |          |    |
| Declared load profile   |            |       |      | Water heating energy efficiency  |            | $\eta_{WH}$                           | %        |    |
| Daily electricity consumption   |            |       |      | Daily fuel consumption   |            | $Q_{fuel}$                            | kWh      |    |
| Contact details   |            |       |      | Alpha Therm Ltd., Nepicar House, Wrotham Heath, Kent. TN15 7RS             |            |                                       |          |    |

(\*) High temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.

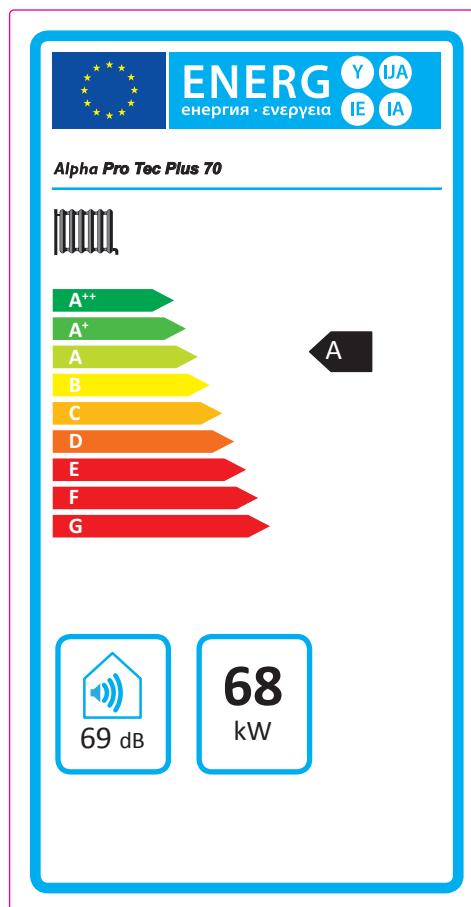
(\*\*) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature.

### 13.2 PRODUCT DATA SHEET (IN COMPLIANCE WITH REGULATION 811/2013)

#### Pro Tec Plus 50



#### Pro Tec Plus 70



| Parameter  | value    |
|--|----------|
| Yearly energy consumption for the heating function (QHE)                 | 157.0 GJ |
| Yearly electricity consumption for the domestic hot water function (AEC) | -----    |
| Yearly fuel consumption for the domestic hot water function (AFC)        | -----    |
| Seasonal room heating yield ( $\eta_s$ )                                 | 92 %     |
| Domestic hot water production yield ( $\eta_{wh}$ )                      | -----    |

| Parameter  | value    |
|--|----------|
| Yearly energy consumption for the heating function (QHE)                 | 213.5 GJ |
| Yearly electricity consumption for the domestic hot water function (AEC) | -----    |
| Yearly fuel consumption for the domestic hot water function (AFC)        | -----    |
| Seasonal room heating yield ( $\eta_s$ )                                 | 92 %     |
| Domestic hot water production yield ( $\eta_{wh}$ )                      | -----    |