# TWIN - Two-in-one calorifier/buffer store for heat pumps
# TW1X - Made of AISI 316L Stainless steel
# TW1V - Made of glass lined steel

The system consists of two cylinders in a single body: the upper tank is a calorifier for the production and storage of domestic hot water (DHW) equipped with a high efficiency heat exchanger that can be powered by a heat pump, while the lower tank is a primary water buffer store for the heating system that is also fed by a heat pump.
The calorifier body is available in stainless steel (mod. TW1X) or glass lined steel (TW1V), the buffer store is made only in carbon steel.
Twin represents a very a cost effective and compact solution that allows to have a complete system by reducing space and installation costs.
It is also prepared to host a backup immersion heater (not supplied).

HEAT SOURCE

APPLICATION

## TECHNICAL FEATURES

| | | TW1X | TW1V |
|---|---|---|---|
| DHW cylinder | Material | AISI 316L Stainless steel (1.4404) | Glass lined S 235 Jr Carbon steel |
| | Internal protective treatment | Pickling and passivation | Enamelling according to DIN 4753.3 |
| | External protective treatment | Pickling and passivation | Anti rust protection + epoxy painting |
| | Rating (P max. / T max.) | 6 bar / 95°C | 8 bar / 95°C |
| | Cathodic protection | Magnesium anode | Magnesium anode |
| Heat exchanger | Material | AISI 316L Stainless steel (1.4404) | Glass lined S 235 Jr Carbon steel |
| | Internal protective treatment | Pickling and passivation | None |
| | External protective treatment | Pickling and passivation | Enamelling according to DIN 4753.3 |
| | Type | Fixed coil for 200 litres capacity<br>Double spiral fixed coil for capacities from 300 to 500 litres | |
| | Rating (P max. / T max.) | 10 bar / 95°C | 10 bar / 95°C |
| Buffer vessel | Material | S 235 Jr Carbon steel | |
| | Internal protective treatment | None | |
| | External protective treatment | Anti rust protection + epoxy painting | |
| | Rating (P max. / T max.) | 4 bar / 95°C | |
| General features | Capacity | DHW cylinder: 200 ÷ 500 L / Buffer vessel: 50 ÷ 80 L | |
| | Warranty | 5 years | |
| | Insulation | Rigid polyurethane foam + PVC: Fire retardant class B3 (DIN 4102) | |
| | In compliance with | - Pressure Equipment Directive (PED) 2014/68/UE Art. 4 Para 3<br>- Italian MOH specifications (products suitable to contain potable water)<br>- Energy related Products (Erp) Directive 2009/125/CE | |

## ACCESSORIES (page 218)

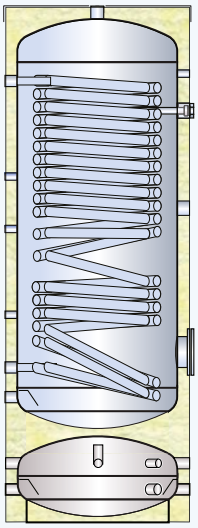

Impressed current electronic anode


Electronic control unit


Thermostat

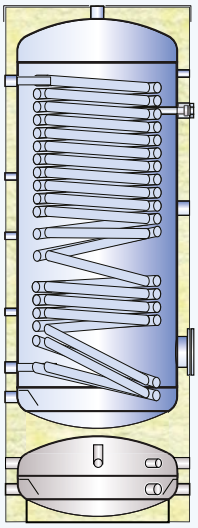

Thermometer


1"½ electric immersion heater



## TW1X - Calorifier body in AISI 316L stainless steel
## Hard insulation with rigid polyurethane foam and PVC jacket

| CODE | INSULATION THICK. (mm) | ErP CLASS | HEAT LOSS S (W) | REAL CAPACITY (L) | HEAT EXCHANGER ($m^2$) / (L) * | BUFFER CAPACITY (L) |
|---|---|---|---|---|---|---|
| TW1X 00200 R | 50 | B | 59,9 | 189,8 | 1,90 / 18,6 | 42,0 |
| TW1X 00300 R | 50 | B | 69,2 | 290,3 | 3,50 / 34,3 | 58,0 |
| TW1X 00400 R | 50 | B | 78,0 | 414,9 | 4,50 / 44,1 | 74,0 |
| TW1X 00500 R | 50 | B | 83,0 | 500,3 | 5,70 / 55,9 | 74,0 |

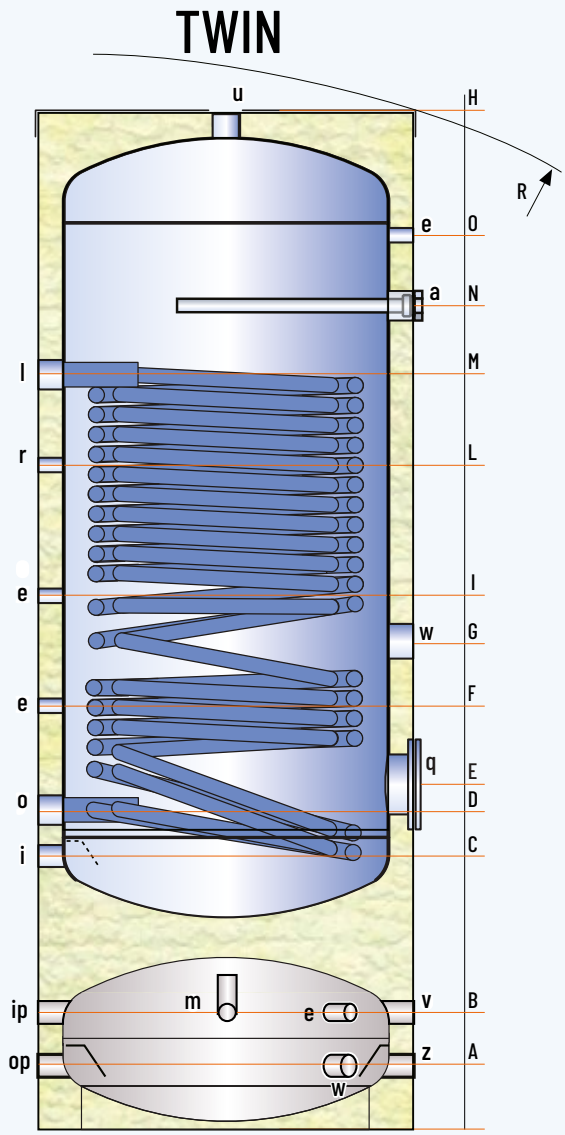


## TW1V - Calorifier body in glass lined steel
## Hard insulation with rigid polyurethane foam and PVC jacket

| CODE | INSULATION THICK. (mm) | ErP CLASS | HEAT LOSS S (W) | REAL CAPACITY (L) | HEAT EXCHANGER ($m^2$) / (L) * | BUFFER CAPACITY (L) |
|---|---|---|---|---|---|---|
| TW1V 00200 R | 50 | B | 59,9 | 189,8 | 2,10 / 20,6 | 42,0 |
| TW1V 00300 R | 50 | B | 69,2 | 290,3 | 3,50 / 34,3 | 58,0 |
| TW1V 00400 R | 50 | B | 78,0 | 414,9 | 4,50 / 44,1 | 74,0 |
| TW1V 00500 R | 50 | B | 83,0 | 500,3 | 5,70 / 55,9 | 74,0 |

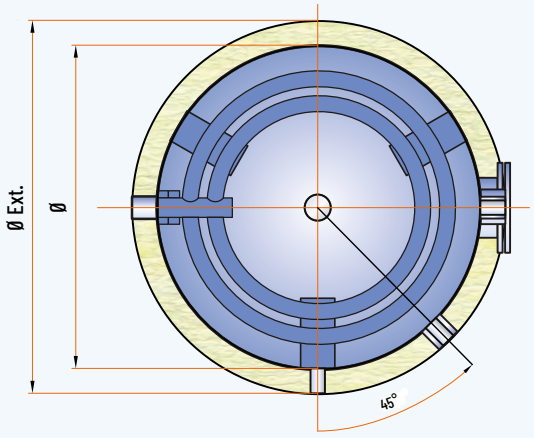
** Volume occupied by the heat exchanger and its support structure*

## Dimensions and heights




**LEGEND**

- **a .** Magnesium anode
- **e .** Thermometer - Sensor
- **i .** Domestic cold water inlet
- **l .** Heat pump flow
- **o .** Heat pump return
- **q .** DHW inspection hatch
- **r .** Recirculation
- **u .** Domestic hot water outlet
- **w.** Opening for immersion heater
- **ip .** Heat pump flow to buffer vessel
- **op .** Heat pump return from buffer vessel
- **m .** Buffer vent
- **v .** Heating system flow
- **z .** Heating system return




| MODEL | DIMENSIONS (mm) Ø | H | Ø EXT | R | HEAT EXCHANGER (m²) | BUFFER VOLUME (L) | SS MODEL WEIGHT (kg) | GLASS LINED MODEL WEIGHT (kg) |
|---|---|---|---|---|---|---|---|---|
| TW1X 00200 R | 450 | 1690 | 550 | 1790 | 1,90 * | 42 | 79 | - |
| TW1V 00200 R | 450 | 1690 | 550 | 1790 | 2,10 * | 42 | - | 93 |
| TW1_ 00300 R | 500 | 1980 | 600 | 2080 | 3,50 | 58 | 108 | 127 |
| TW1_ 00400 R | 650 | 1760 | 750 | 1925 | 4,60 | 74 | 131 | 154 |
| TW1_ 00500 R | 650 | 2000 | 750 | 2150 | 5,70 | 74 | 152 | 180 |

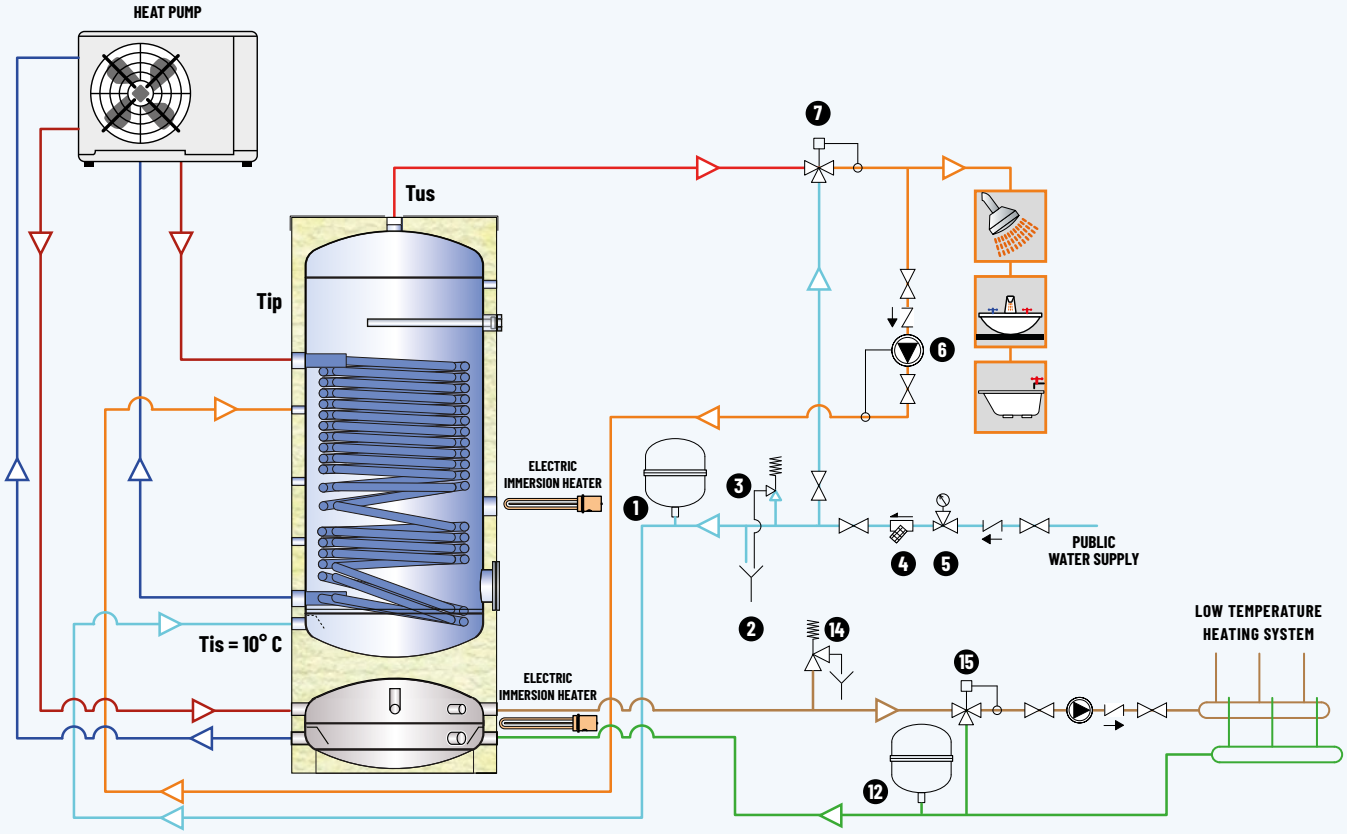
** Fixed single spiral coil*

| MODEL | HEIGHTS (mm) A | B | C | D | E | F | G | I | L | M | N | O | CONNECTIONS (GAS) a | l o | e r m | i u v z i p o p | w | q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TW1_ 00200 R | 105 | 300 | 487 | 580 | 650 | 730 | 1015 | 1015 | 1135 | 1470 | 1346 | 1480 | 1"¼ | 1" | ½" | 1" | 1"½ | 120/180 |
| TW1_ 00300 R | 115 | 305 | 510 | 600 | 690 | 710 | 885 | 1180 | 1315 | 1510 | 1560 | 1765 | 1"¼ | 1"¼ | ½" | 1" | 1"½ | 120/180 |
| TW1_ 00400 R | 145 | 250 | 515 | 610 | 680 | 720 | 895 | 1050 | 1240 | 1375 | 1400 | 1510 | 1"¼ | 1"¼ | ½" | 1" | 1"½ | 120/180 |
| TW1_ 00500 R | 145 | 250 | 505 | 600 | 670 | 710 | 930 | 1168 | 1380 | 1610 | 1640 | 1750 | 1"¼ | 1"¼ | ½" | 1" | 1"½ | 120/180 |

***Disclaimer:*** *this layout is purely indicative. It does not replace consultant's design*

## LEGEND

**1** . Domestic water expansion vessel
**2** . Domestic water drain
**3** . Domestic water safety valve (6 bar)
**4** . Strainer
**5** . Pressure reducing valve
**6** . DWH Recirculation pump
**7** . DHW 3-way valve
**12** . Heating system expansion vessel
**14** . Heating system safety valve
**15** . 3-way valve low temperature heating system



| | MODEL | TW1X 00200R | | | | TW1V 00200R | | | | TW1_ 00300R | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HEAT EXCHANGER ($m^2$) [L] [1] | 1,9 [13,5] | | | | 2,1 [14,9] | | | | 3,5 [24,9] | | | |
| | PRIMARY FLOW ($m^3$/h) | 2 | | | | 2 | | | | 2 | | | |
| | PRIMARY TEMP. (°C) | 50 | 60 | 70 | 80 | 50 | 60 | 70 | 80 | 50 | 60 | 70 | 80 |
| DHW FROM 10 TO 45 °C | LITRES 10' (L/10') [2] | 249 | 296 | 413 | 452 | 256 | 306 | 427 | 468 | 390 | 462 | 642 | 701 |
| | LITRES FIRST HOUR [2] | 595 | 872 | 1193 | 1425 | 633 | 932 | 1272 | 1523 | 962 | 1391 | 1880 | 2235 |
| | CONTINUOUS DRAW (L) [3] | 437 | 729 | 984 | 1229 | 476 | 791 | 1067 | 1332 | 722 | 1173 | 1565 | 1938 |
| | POWER (kW) | 18 | 30 | 40 | 50 | 19 | 32 | 43 | 54 | 29 | 48 | 64 | 79 |
| | PREHEATING [3] (min) | 29 | 17 | 12 | 10 | 27 | 16 | 11 | 9 | 29 | 17 | 12 | 10 |
| DHW FROM 10 TO 60 °C | LITRES 10' (L/10') [2] | - | - | 260 | 291 | - | - | 267 | 301 | - | - | 406 | 455 |
| | LITRES FIRST HOUR [2] | - | - | 657 | 846 | - | - | 699 | 903 | - | - | 1057 | 1349 |
| | CONTINUOUS DRAW (L) [3] | - | - | 501 | 701 | - | - | 546 | 761 | - | - | 822 | 1129 |
| | POWER (kW) | - | - | 29 | 41 | - | - | 32 | 44 | - | - | 47,8 | 65,7 |
| | PREHEATING [3] (min) | - | - | 25 | 18 | - | - | 23 | 16 | - | - | 25 | 18 |
| | NL [4] | 4 | | | | 4 | | | | 11 | | | |

| | MODEL | TW1_ 00400R | | | | TW1_ 00500R | | | |
|---|---|---|---|---|---|---|---|---|---|
| | HEAT EXCHANGER ($m^2$) [L] [1] | 4,5 [32,0] | | | | 5,7 [40,5] | | | |
| | PRIMARY FLOW ($m^3$/h) | 3 | | | | 3 | | | |
| | PRIMARY TEMP. (°C) | 50 | 60 | 70 | 80 | 50 | 60 | 70 | 80 |
| DHW FROM 10 TO 45 °C | LITRES 10' (L/10') [2] | 546 | 643 | 896 | 977 | 658 | 771 | 1072 | 1165 |
| | LITRES FIRST HOUR [2] | 1305 | 1887 | 2562 | 3044 | 1571 | 2247 | 3037 | 3595 |
| | CONTINUOUS DRAW (L) [3] | 959 | 1571 | 2104 | 2612 | 1153 | 1865 | 2482 | 3070 |
| | POWER (kW) | 39 | 64 | 86 | 106 | 47 | 76 | 101 | 125 |
| | PREHEATING [3] (min) | 31 | 18 | 13 | 10 | 32 | 19 | 14 | 11 |
| DHW FROM 10 TO 60 °C | LITRES 10' (L/10') [2] | - | - | 568 | 634 | - | - | 683 | 760 |
| | LITRES FIRST HOUR [2] | - | - | 1434 | 1831 | - | - | 1721 | 2182 |
| | CONTINUOUS DRAW (L) [3] | - | - | 1095 | 1512 | - | - | 1311 | 1796 |
| | POWER (kW) | - | - | 64 | 88 | - | - | 76,2 | 104,5 |
| | PREHEATING [3] (min) | - | - | 26 | 19 | - | - | 28 | 19 |
| | NL [4] | 20 | | | | 30 | | | |

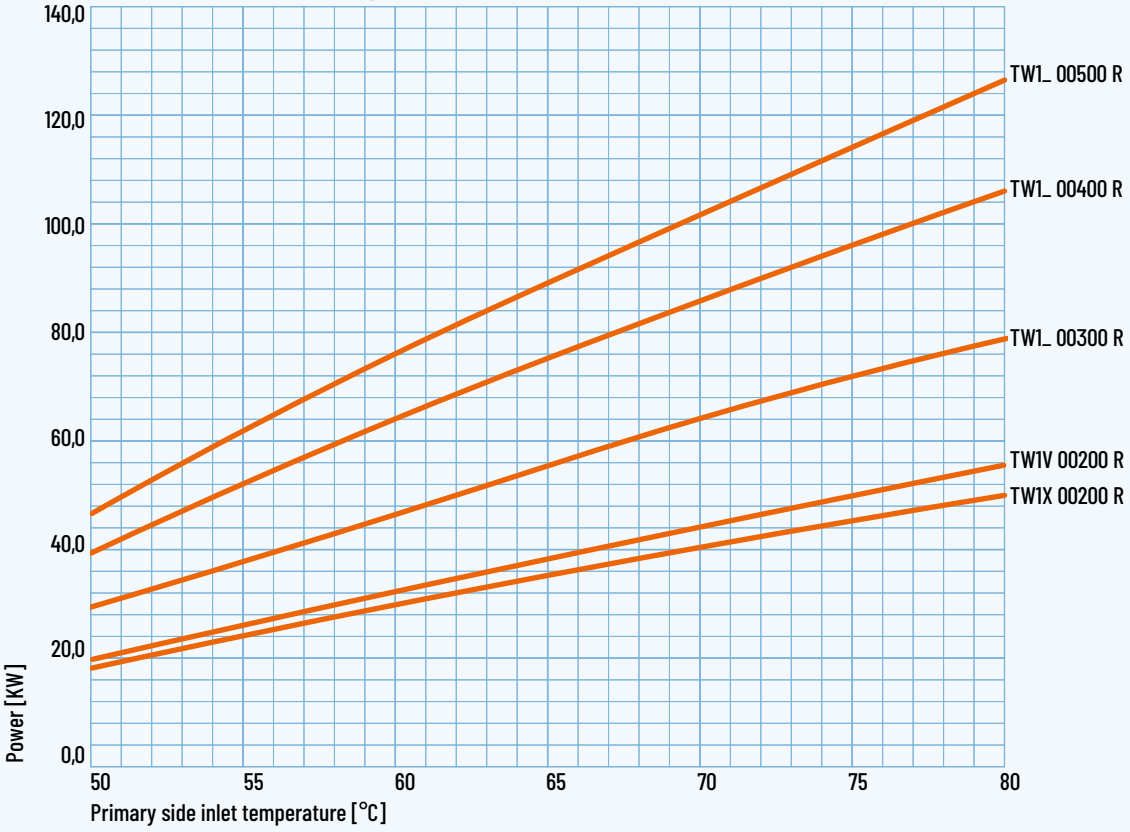
*(1) Volume of fluid contained in the heat exchanger*

*(2) Obtainable with pre-heated cylinder (at 45 °C with primary side set at 50 or 60 °C and pre-heated at 60 °C in the other cases) and a running heat source*

*(3) With a proper power heat source generator*

*(4) Primary side 80 °C - Secondary side 10-45 °C*

## TWIN - Heat exchanger powers with secondary side at 10/45 °C




## TWIN - Heat exchanger pressure drops