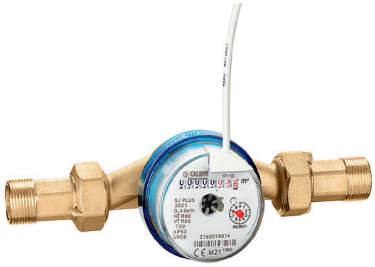
# Domestic water volume meter

## 7942 series

01390/24 EN



### Function

7942 series domestic water volume meters are used to measure the domestic hot and cold water flow rate.

It is a turbine-type volume meter. The turbine speed is measured by means of a high-resistance protected magnetic joint. The device is not subject to condensation build-up because the mechanism is contained in a vacuum. The mechanism locking nut, which is made of non-magnetic material, prevents all tamper attempts. The electronic technology and materials used enable precise and reliable measurement.

The meters are designed for local and remote reading by means of a pulse output featuring a reed type contact, with pulse weight defined on the basis of the type of volume and the diameter.

### Product range

| | | |
|---|---|---|
| 7942 series.. | DCW meter (max. 50 °C) | sizes 1/2” – DN100 |
| 7942../C series | DHW meter (50 – 90 °C) | sizes 1/2” – 2” |
| 7942../C1 series | DHW meter (50 – 90 °C), pulse weight 1 l/pulse | sizes 1/2” – 1” |
| 7941 series | User domestic water cut-off | cold / hot, sizes 1/2” – 3/4” |
| 7943 series | User domestic water cut-off with 90° outlet | cold / hot, sizes 1/2” – 3/4” |

### Technical specifications

- Conformity with Directive 2014/32/EU (MI-001)
- Tamper-proof protection
- Mineral glass viewer
- Domestic water certifications available for EU countries
- Accuracy class 2 (OIML R49-1:2013)
- Facility for reed switch pulse or static emitter, optional
- Mechanical transmission that cannot be influenced by external magnetic fields
- Mechanism can be rotated 360°

### Technical specifications

| | | Threaded | Flanged |
|---|---|---|---|
| **Dimensions/Connection** | | 1/2”–2” | DN 65–DN 100 |
| **Body** | | Brass EN 12165 CW617N | Cast iron EN-JL1040 |
| **Type of hydraulic connection** | | Male with union ISO 228 | Flanged EN 1092-1 |
| **Nominal pressure** | bar | PN 16 | PN 16 |
| **Medium temperature range** | °C | 50 °C (DCW meters) – 90 °C (DHW meters) | |
| **Mounting** | | Preferably horizontal | |
| **Pulse output** | | class OA-OC in accordance with EN1434-2 | |
| **Pulse weight** | l/pulse | 1 - 10 - 100, see tables 1,2,5 | |

**TAB.1 – Flow rate limit ($m^3/h$) and pulse weight – Domestic cold water (DCW) (max. 50 °C)**

| Codes | Connections | $Q_3$ ($m^3/h$) | $Q_1$ (l/h) | $Q_4$ ($m^3/h$) | $Q_2$ (l/h) | Start-up flow rate (l/h) | Pulse weight (l/pulse) |
|---|---|---|---|---|---|---|---|
| **7941**40 / **7942**04 / **7943**40 | 1/2” | 2,5 | 25 | 3,1 | 40 | 6 | 10 |
| **7941**50 / **7942**05 / **7943**50 | 3/4” | 4,0 | 40 | 5 | 64 | 8 | 10 |
| **7942**06 | 1” | 6,3 | 39,4 | 7,9 | 63 | 16 – 18 | 10 |
| **7942**07 | 1 1/4” | 10 | 62,50 | 12,5 | 100 | 22 – 24 | 10 |
| **7942**08 | 1 1/2” | 16 | 100 | 20 | 160 | 28 – 30 | 10 |
| **7942**09 | 2” | 25 | 156,3 | 31,3 | 250 | 28 – 30 | 10 |
| **7942**10 | DN 65 | 63 | 630 | 78,8 | 1008 | 190 | 100 |
| **7942**11 | DN 80 | 100 | 1000 | 125 | 1600 | 320 | 100 |
| **7942**12 | DN 100 | 160 | 1600 | 200 | 2560 | 450 | 100 |

**TAB.2 – Flow rate limit ($m^3/h$) and pulse weight – Domestic hot water (DHW) (50 °C–90 °C)**

| Codes | Connections | $Q_3$ ($m^3/h$) | $Q_1$ (l/h) | $Q_4$ ($m^3/h$) | $Q_2$ (l/h) | Start-up flow rate (l/h) | Pulse weight (l/pulse) |
|---|---|---|---|---|---|---|---|
| **7941**41 / **7942**04/C / **7943**41 | 1/2” | 2,5 | 25 | 3,1 | 40 | 6 | 10 |
| **7941**51 / **7942**05/C / **7943**51 | 3/4” | 4,0 | 40 | 5 | 64 | 8 | 10 |
| **7942**06/C | 1” | 6,3 | 78,9 | 7,9 | 126 | 26 | 10 |
| **7942**07/C | 1 1/4” | 10 | 125 | 12,5 | 200 | 40 | 10 |
| **7942**08/C | 1 1/2” | 16 | 200 | 20 | 320 | 60 | 10 |
| **7942**09/C | 2” | 25 | 312,5 | 31,2 | 500 | 100 | 10 |

**TAB.3 – Flow rate limit ($m^3/h$) – Domestic cold water (DCW) (max. 50 °C) – Without pulse output**

| Codes | Connections | $Q_3$ ($m^3/h$) | $Q_1$ (l/h) | $Q_4$ ($m^3/h$) | $Q_2$ (l/h) | Start-up flow rate (l/h) |
|---|---|---|---|---|---|---|
| **7942**14 | 1/2” | 2,5 | 25 | 3,1 | 40 | 6 |
| **7942**15 | 3/4” | 4,0 | 40 | 5 | 64 | 8 |

**TAB.4 – Flow rate limit ($m^3/h$) – Domestic hot water (DHW) (50 °C–90 °C) – Without pulse output**

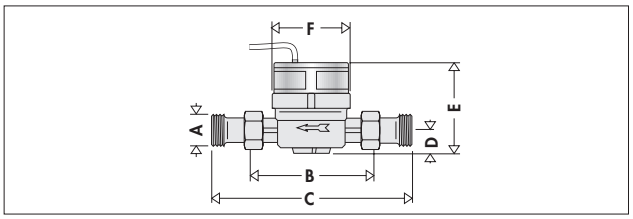
| Codes | Connections | $Q_3$ ($m^3/h$) | $Q_1$ (l/h) | $Q_4$ ($m^3/h$) | $Q_2$ (l/h) | Start-up flow rate (l/h) |
|---|---|---|---|---|---|---|
| **7942**14/C | 1/2” | 2,5 | 25 | 3,1 | 40 | 6 |
| **7942**15/C | 3/4” | 4,0 | 40 | 5 | 64 | 8 |

**TAB.5 – Flow rate limit ($m^3/h$) and pulse weight – Domestic hot water (DHW) (50 °C–90 °C)**

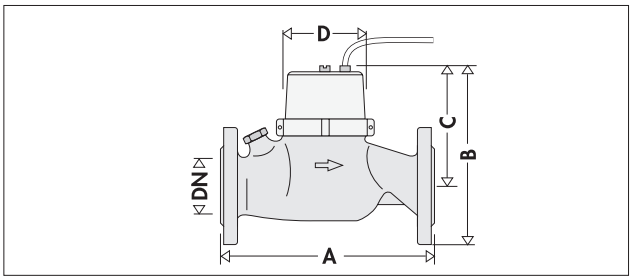
| Codes | Connections | $Q_3$ ($m^3/h$) | $Q_1$ (l/h) | $Q_4$ ($m^3/h$) | $Q_2$ (l/h) | Start-up flow rate (l/h) | Pulse weight (l/pulse) |
|---|---|---|---|---|---|---|---|
| **7942**04/C1 | 1/2” | 2,5 | 15.6 | 3,1 | 25 | 4 – 5 | 1 |
| **7942**05/C1 | 3/4” | 4,0 | 25 | 5 | 40 | 7 – 9 | 1 |
| **7942**06/C1 | 1” | 6,3 | 78 | 7,8 | 126 | 26 | 1 |

| | | |
|---|---|---|
| **$Q_1$** | Minimum flow rate | The minimum flow rate at which the water meter provides readings that meet the maximum tolerated error requirements. |
| **$Q_2$** | Transitional flow rate | The transitional flow rate is the flow rate value between the permanent flow rate and the minimum flow rate, where the flow rate range is divided into two zones, the “Upper zone” and the “Lower zone”. Each zone has a typical maximum tolerated error. |
| **$Q_3$** | Permanent flow rate | The highest flow rate at which the water meter can work well in normal operating conditions, i.e. with a stable or intermittent flow rate. |
| **$Q_4$** | Overload flow rate | The overload flow rate is the highest flow rate at which the meter can work well for a short period of time without experiencing a decline in performance. |

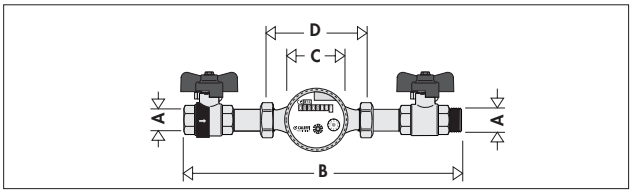
## Dimensions



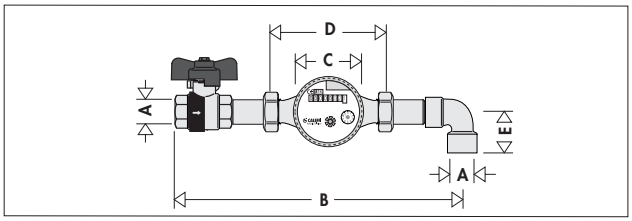

| Code | A | B | C | D | E | F | Weight (kg) |
|---|---|---|---|---|---|---|---|
| **7942**04 | 1/2" | 110 | 190 | 16 | 68 | Ø 70 | 0,95 |
| **7942**04/C | 1/2" | 110 | 190 | 16 | 68 | Ø 70 | 0,95 |
| **7942**14 | 1/2" | 110 | 190 | 16 | 68 | Ø 70 | 0,94 |
| **7942**14/C | 1/2" | 110 | 190 | 16 | 68 | Ø 70 | 0,94 |
| **7942**05 | 3/4" | 130 | 226 | 19 | 68 | Ø 70 | 1,20 |
| **7942**05/C | 3/4" | 130 | 226 | 19 | 68 | Ø 70 | 1,20 |
| **7942**15 | 3/4" | 130 | 226 | 19 | 68 | Ø 70 | 1,19 |
| **7942**15/C | 3/4" | 130 | 226 | 19 | 68 | Ø 70 | 1,19 |
| **7942**06 | 1" | 260 | 358 | 34 | 159 | Ø 100 | 3,50 |
| **7942**06/C | 1" | 260 | 358 | 34 | 159 | Ø 100 | 3,50 |
| **7942**07 | 1 1/4" | 260 | 378 | 34 | 159 | Ø 100 | 4,30 |
| **7942**07/C | 1 1/4" | 260 | 378 | 34 | 159 | Ø 100 | 4,30 |
| **7942**08 | 1 1/2" | 300 | 438 | 45 | 185 | Ø 136 | 7,50 |
| **7942**08/C | 1 1/2" | 300 | 438 | 45 | 185 | Ø 136 | 7,50 |
| **7942**09 | 2" | 300 | 458 | 45 | 199 | Ø 166 | 10,00 |
| **7942**09/C | 2" | 300 | 458 | 45 | 199 | Ø 166 | 10,00 |




| Code | DN | A | B | C | D | Weight (kg) |
|---|---|---|---|---|---|---|
| **7942**10 | DN 65 | 200 | 220 | 132 | 200 | 11.20 |
| **7942**11 | DN 80 | 225 | 250 | 154 | 200 | 15.20 |
| **7942**12 | DN 100 | 250 | 260 | 154 | 225 | 17.20 |




| Code | A | B | C | D | Weight (kg) |
|---|---|---|---|---|---|
| **7941**40 | 1/2" | 280 | Ø 75 | 110 | 1,10 |
| **7941**41 | 1/2" | 280 | Ø 75 | 110 | 1,10 |
| **7941**50 | 3/4" | 330 | Ø 75 | 130 | 1,50 |
| **7941**51 | 3/4" | 330 | Ø 75 | 130 | 1,50 |




| Code | A | B | C | D | E | Weight (kg) |
|---|---|---|---|---|---|---|
| **7943**40 | 1/2" | 250 | Ø 75 | 110 | 25 | 1,10 |
| **7943**41 | 1/2" | 250 | Ø 75 | 110 | 25 | 1,10 |
| **7943**50 | 3/4" | 300 | Ø 75 | 130 | 30 | 1,10 |
| **7943**51 | 3/4" | 300 | Ø 75 | 130 | 30 | 1,10 |

### Guidelines for first installation

It is good practice to install **shut-off valves upstream and downstream of the meter** in order to facilitate installation and maintenance, if required.
A **filtering device** must be provided upstream of the flow rate meter in order to protect the meter.

### Installation procedure

- Install the volume meter according to the following instructions:

  **Flow rate meter position**

  The flow rate meter **should preferably be installed** in a horizontal position, with the axis of the turbine vertical, **strictly observing the flow direction** as indicated by the arrow on the body. Vertical installation with a downward flow should be avoided.

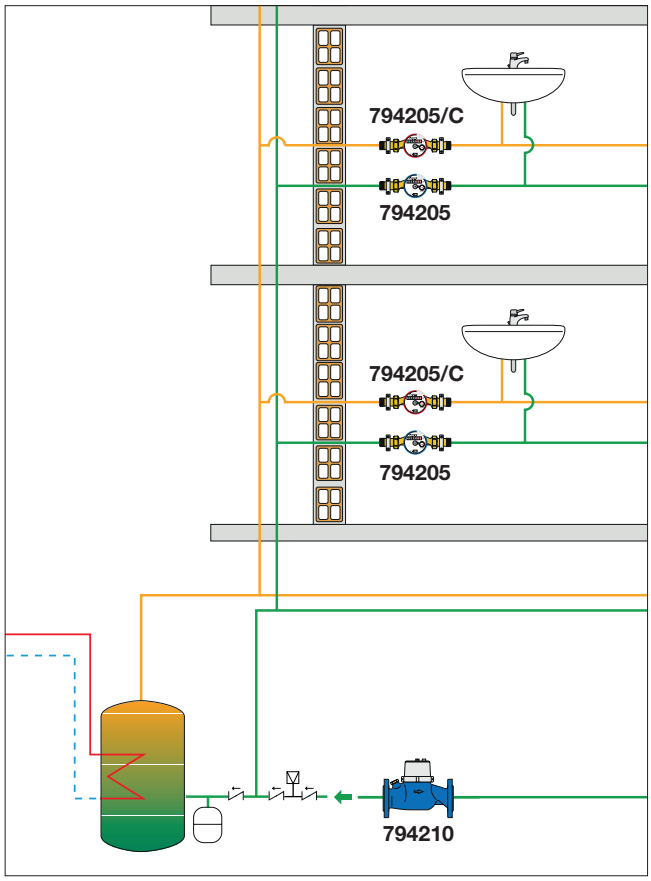
  **Dial position**

  Observe the indications shown on the dial (letters H and V):
  - H: the meter must be installed with the dial in a horizontal position;
  - V: the meter must be installed with the dial in a vertical position;
  - H and V: the meter can be installed with the dial in both positions.

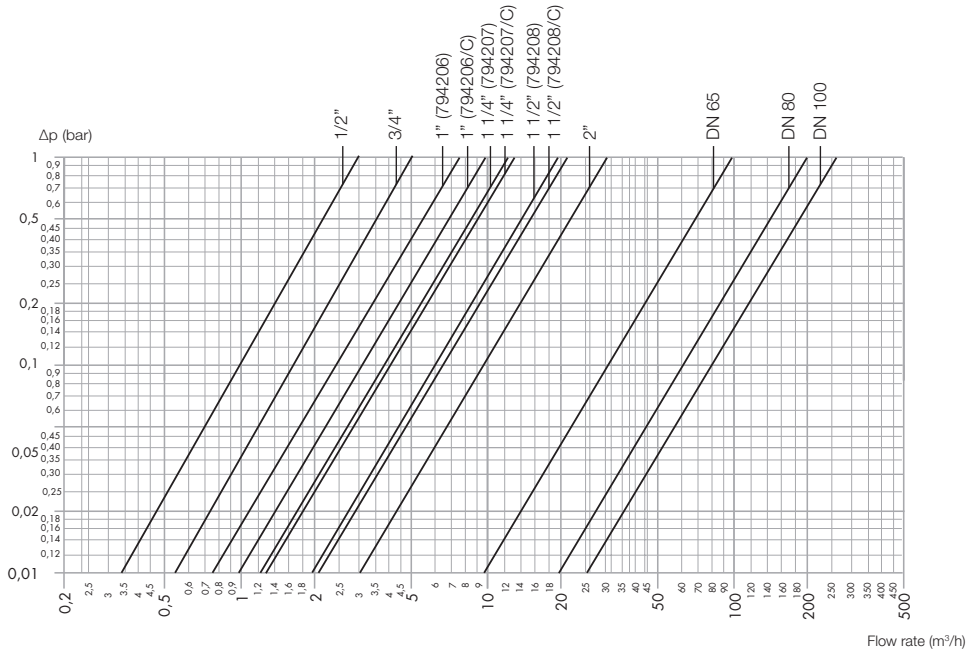
  Installation with the dial facing downwards should, however, be avoided.

- After installation, **flush the pipes and carry out a pressurised test**;
- **Check the saturation level of the strainers** and, if necessary, clean them.

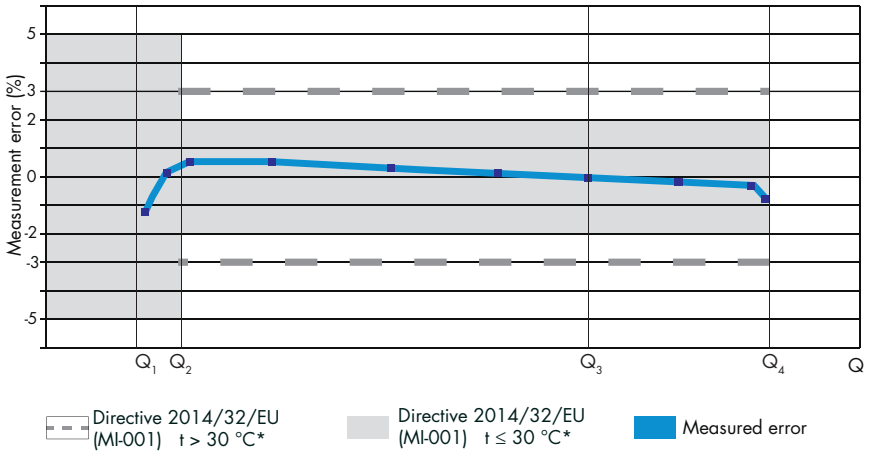
**Illustrative diagram of the central unit and domestic water distribution with central unit and consumer metering**



## Hydraulic characteristics

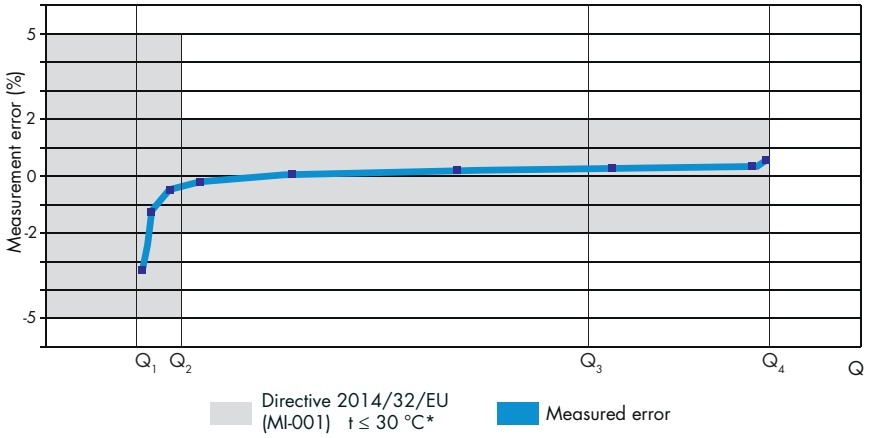



## Measurement error




**For codes:**

794204
794204/C
794204/C1
794205
794205/C
794205/C1
794214
794214/C
794215
794215/C
794206
794207
794208
794209




**For codes:**

794210
794211
794212

***Maximum tolerated error**

The maximum tolerated error, positive or negative, for volumes falling within the transitional flow rate ($Q_2$) (inclusive) and the overload flow rate ($Q_4$) is as follows:
2 % with water temperature ≤ 30 °C.
3 % with water temperature > 30 °C.
The maximum tolerated error, positive or negative, for volumes falling within the minimum flow rate ($Q_1$) and the transitional flow rate ($Q_2$) (not inclusive) is 5 % regardless of the water temperature.
The maximum tolerated error corresponds to accuracy class 2 in accordance with OIML R49-1:2013.

# DIRECT METERING WITH CONTECA® EASY

## CONTECA® EASY heat meter

**Compliance with Directive 2014/32/EU**
**Accuracy class: 3 according to EN 1434**
**Note: for more details please refer to tech. broch. 01306**

### Technical specifications

**Temperature probe**

| | |
|---|---|
| Type | NTC |
| Temperature difference limit: | 3 - 80 K |
| Measurement sensitivity: | ≤ 0,05 °C |

**Volume meter**

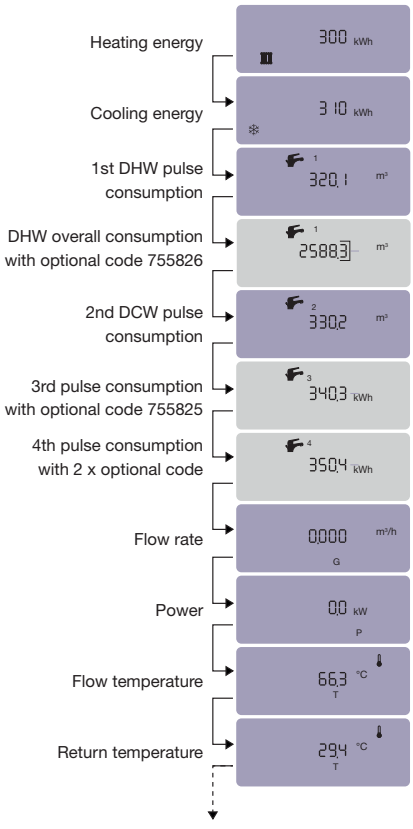
| | |
|---|---|
| Nominal pressure: | PN 10 |
| Max. temperature of the medium: | 90 °C |
| Lowest flow rate $Q_i$: | 50 l/h |
| Nominal flow rate $Q_p$: | 2500 l/h |

**Calculation unit**

| | |
|---|---|
| Metrological specifications: | in compliance with EN 1434-1 MID 2014/32/EU |
| Centralised transmission: | over RS-485 bus (with M-BUS or MODBUS RTU protocol) |
| Ambient classification: | MID 2014/32/EU E1-M1 |
| Electric supply: | 24 V (AC) - 1 W - 50 Hz |
| Protection class according to DIN 40050: | IP 54 |

### User information cycle

The heat meter is equipped with an LCD display. The display is activated by pressing the key on the front PUSH. By repeatedly pressing the key briefly, it is possible to scroll through the various information windows.




## 755826

### Flow rate - DHW recirculation scan option

In DHW distribution systems equipped with recirculation within the user points, DHW consumption meters are subject to incorrect circulation which results in false net consumption (actual user) information. The scan option can be used to distinguish between actual and incorrect (or gross) flow rates, providing an exact DHW consumption value.

The option should be ordered and linked to the supply for both the CONTECA® EASY heat meter and the 755826 00 series hydraulic option (see opposite). The application and verification of the software on site must be carried out by a Caleffi technician or by an authorised service centre. Once the recirculation flow rate has been checked while no water is drawn off, each CONTECA® EASY should be configured with the value of the recirculation flow rate detected. When the flow rate is less than or equal to this value (SET), only the GROSS register will be increased.
When the flow rate is greater than this value (SET), the NET register will be increased as well as the GROSS register.
The NET register shows actual DHW consumption. The difference between the GROSS and NET register represents the volume of water that has passed through in recirculation.
The user can read the following on the LCD display:

1 - NET consumption

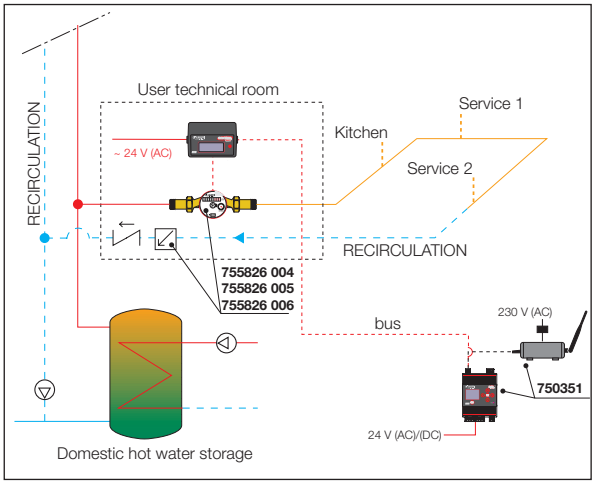

L - GROSS consumption


ri - Recirculation set


## 755826 00.

### Kit for DHW recirculation with volume meter and AUTOFLOW®

In order to use the 755826 software option and stabilise the set recirculation flow rates, it is essential to fit AUTOFLOW® 127 series flow limiters on the return pipe for each user, with the flow rate at 40 and 60 l/h and specific volume meter with pulse weight of 1 litre/pulse.
It is also essential to fit check valves downstream of the 127 series AUTOFLOW® automatic flow rate regulator.




The 755826 00 series kit includes the volume meter with pulse weight 1 l/pulse and the 127 series AUTOFLOW® flow rate regulator for installation to the recirculation pipe.
Codes:

- **code 755826 004**: kit consisting of DHW volume meter, connections 1/2", K1 (pulse weight 1 l/pulse) and 40 l/h AUTOFLOW®.
- **code 755826 005**: kit consisting of DHW volume meter, connections 3/4", K1 (pulse weight 1 l/pulse) and 40 l/h AUTOFLOW®.
- **code 755826 006**: kit consisting of DHW volume meter, connections 1", K1 (pulse weight 1 l/pulse) and 60 l/h AUTOFLOW®.

## SPECIFICATION SUMMARY

**79420 series**
Volume meter (MI-001) for consumer domestic cold water with direct local reading and pulse output k=10 (pulse weight 10 l/pulse). Connections 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" M. Maximum temperature 50 °C. Complete with fittings.

**79420./C series**
Volume meter (MI-001) for consumer domestic hot water with direct local reading and pulse output k=10 (pulse weight 10 l/pulse). Connections 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" M. Maximum temperature 90 °C. Complete with fittings.

**79420./C1 series**
Volume meter (MI-001) for consumer domestic hot water with direct local reading and pulse output k=1 (pulse weight 1 l/pulse). Connections 1/2", 3/4", 1" M. Maximum temperature 90 °C. Complete with fittings.

**79421 series**
Flanged volume meter (MI-001) for consumer domestic hot/cold water with direct local reading and pulse output k=100 (pulse weight 100 l/pulse). Flanged connections DN 65, DN 80, DN 100. Maximum temperature 50 °C.

**Code 755826**
DHW flow rate scan software for use with CONTECA® EASY 750 series heat meter.

**755826 00 series**
Volume meter kit with 1/2" - 1" connections, pulse output k=1 (pulse weight 1 l/pulse) + AUTOFLOW® 127 series with flow rate 40 l/h (60 l/h for 1" meter), for fitting to the recirculation pipe.

**7941 series**
Consumer domestic water cut-off consisting of: volume meter (MI-001) with 1/2" and 3/4" pulse output (k=10); Ball shut-off valve with BALLSTOP built-in check valve, ball shut-off valve. With male terminal.

**7943 series**
Consumer domestic water cut-off consisting of: volume meter (MI-001) with 1/2" and 3/4" pulse output (k=10); Ball shut-off valve with BALLSTOP built-in check valve, ball shut-off valve.
With 90° outlet elbow terminal.

**7000 series**
Consumer domestic water cut-off complete with volume meter (MI-001), ball shut-off valve with BALLSTOP built-in check valve, ball shut-off valve, fixing pipe, securing bracket.

**7009 series**
Template with ball shut-off valves, one with BALLSTOP built-in check valve, for 7942 series volume meters, size 3/4".



CALEFFI Hydronic Solutions

Caleffi S.p.A.
S.R. 229 n. 25 · 28010 Fontaneto d'Agogna (NO) · Italy
Tel. +39 0322 8491 · Fax +39 0322 863723
info@caleffi.com · www.caleffi.com