dal 1954 made in Italy

Barberi®

RUBINETTERIE INDUSTRIALI s.r.l.

| EN | DATASHEET | rev. A |
|---|---|---|
| | **ST**00060 | |
| **P73.DN25** | **22M.01** | **F09** |
| **P73.DN32** | **21M.01** | |

# HYDRAULIC SEPARATORS

## Description

22M.01

P73.DN25

P73.DN32

F09

21M.01

Barberi hydraulic separators, also called decouplers, balancers or hydraulic compensators, are used to make two circuits hydraulically independent: for example, the heat generator circuit (primary circuit) and the distribution circuit to the users (secondary circuit). In this way, the pumps of the two circuits work optimally, avoiding mutual interference. These devices are equipped with connections for the installation of air vents, system drains and temperature probes. The separators are built with steel parts, welded and coated with a protective paint. The separators are supplied with a shell of insulating material, to limit heat loss and, depending on the model, with fixing brackets or floor support.

## Range of products

| | |
|---|---|
| **Series 21M.01** | Hydraulic separator with thermal insulation, DN 25, for horizontal and vertical installation. Complete with running nuts for the connection to the manifold. |
| **Series 22M.01** | Hydraulic separator with thermal insulation, DN 25, with inner mesh to help deaeration and dirt separation. |
| **Series P73.DN25** | Hydraulic separator with thermal insulation, DN 25, with wall mounting brackets. |
| **Series P73.DN32** | Hydraulic separator with thermal insulation, DN 32, with wall mounting brackets. |
| **Series F09** | Hydraulic separator with thermal insulation, DN 100 and DN 150 with telescopic floor support and inner mesh to help deaeration and dirt separation. |

## Features

Working temperature range:
- P73.DN25, P73.DN32: **-10–110 °C (no frost)**
- 21M.01, 22M.01: **0–110 °C (no frost)**
- F09: **0–110 °C (no frost)**

Maximum working pressure:
- P73.DN25, P73.DN32: **4 bar**
- 22M.01: **10 bar**
- 21M.01, F09: **6 bar**

Suitable fluids: **water for thermal systems, glycol solutions (max 30% for 21M.01 and 22M.01, max 50% for P73.DN25, P73.DN32 and F09)**

Connections: **female EN 10226-1/male ISO 228-1/flanged EN 1092 PN 16**

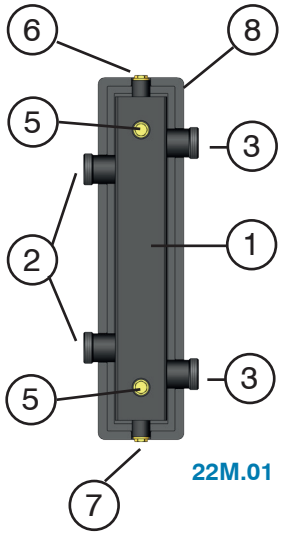
Connection centre distance:
- 21M.01: **125 mm**
- F09 (primary/secondary): **600/300 mm**

## Materials

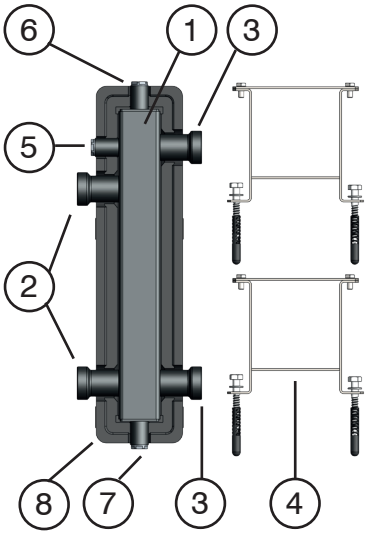
Body and fittings: **painted steel**
Plugs: **brass CW617N**
Gaskets: **EPDM, fiber**
Insulation (21M.01, 22M.01, P73.DN25, P73.DN32):
- Material: **PPE**
- Density: **38 kg/m³**
- Thickness: **37 mm**
- Thermal conductivity: **0,039 W/mK**

Insulation (F09):
- Material: **closed cell expanded PE-X**
- Thickness: **30 mm**
- Density: **30-80 kg/m³ (inner-outer)**
- Thermal conductivity (ISO 2581):
- **- 0,036-0,043 W/(m·K) (10 °C) (inner-outer)**
- **- 0,041-0,047 W/(m·K) (40 °C) (inner-outer)**
- Coefficient of resistance to water vapour diffusion (ISO 12572): **1300**

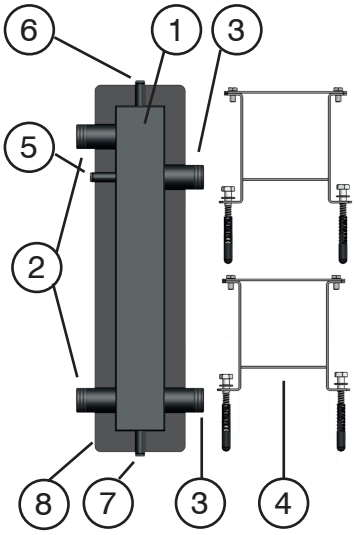
## Components



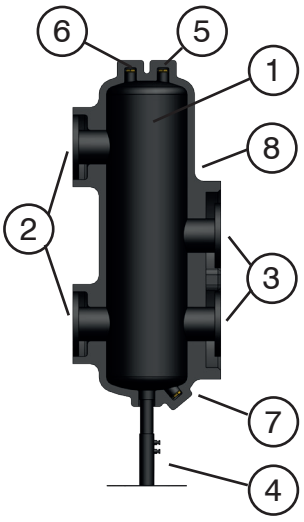

22M.01



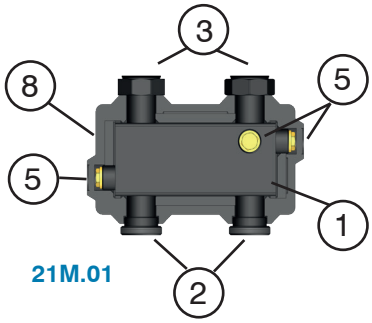

P73.DN25




P73.DN32



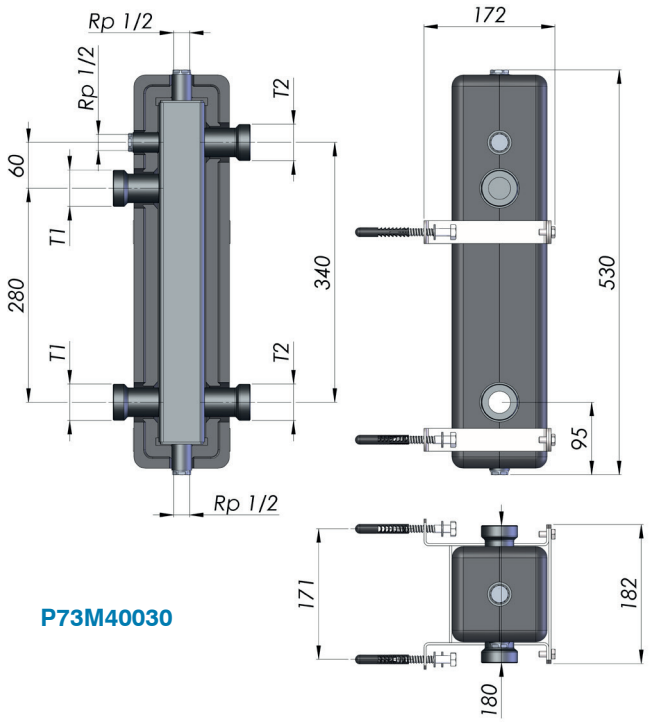

F09



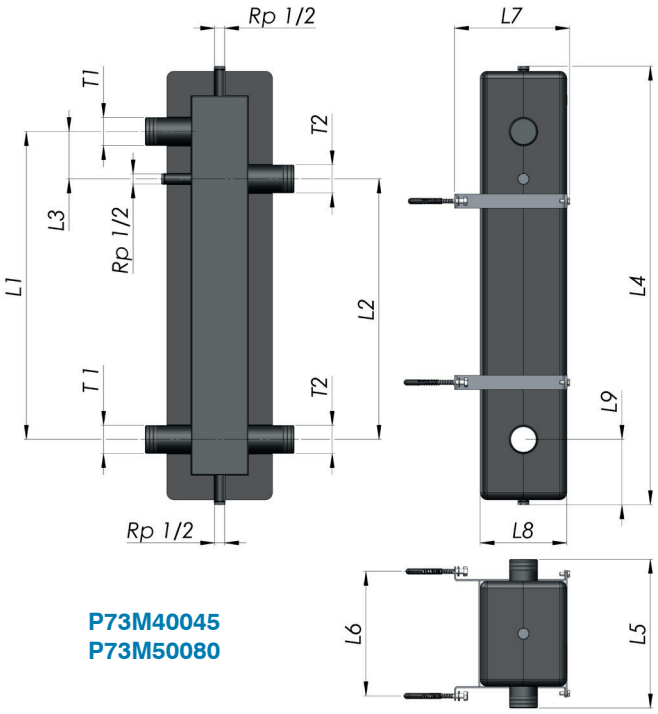

21M.01

| 21M.01, 22M.01, P73.DN25, P73.DN32, F09 | |
|---|---|
| 1 | Separator body |
| 2 | Boiler side primary connections |
| 3 | Manifold side secondary connections |
| 4 | Brackets or telescopic floor support |
| 5 | Threaded connection (for example for pressure/temperature port) |
| 6 | Threaded connection (for example for air vent) |
| 7 | Threaded connection (for example for fill/drain cock) |
| 8 | Insulation |

## Dimensions



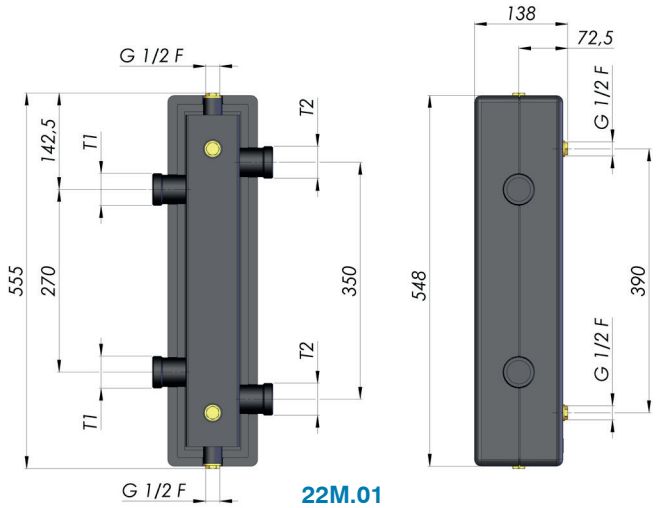

P73M40030



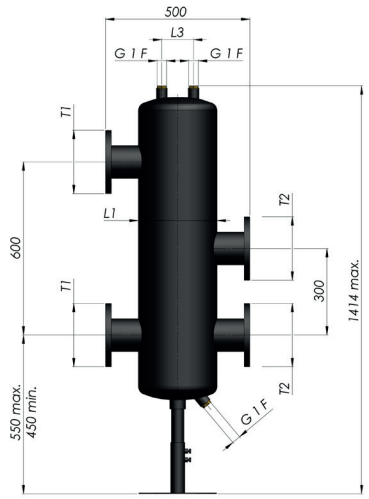

P73M40045
P73M50080

| Series | Code | DN | Flow rate max [m³/h] | Power [kW] ΔT=10 K | Power [kW] ΔT=20 K | T1 | T2 | L1 [mm] | L2 [mm] | L3 [mm] | L4 [mm] | L5 [mm] | L6 [mm] | L7 [mm] | L8 [mm] | L9 [mm] | Volume [l] | Weight [kg] | N. P/B | N. P/C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P73.DN25 | **P73** M40 030 | 25 | 3 | 35 | 70 | G 1 1/2 M | G 1 1/2 M | - | - | - | - | - | - | - | - | - | 1,6 | 5 | - | 1 |
| | **P73** M40 045 | 25 | 4,5 | 53 | 105 | G 1 1/2 M | G 1 1/2 M | 360 | 280 | 80 | 585 | 200 | 201 | 182 | 135 | - | 2,3 | 5,85 | - | 1 |
| P73.DN32 | **P73** M50 080 | 32 | 8 | 93 | 186 | G 2 M | G 2 M | 650 | 550 | 100 | 926 | 314 | 263 | 243 | 183 | 138 | 7,7 | 13,5 | - | 1 |

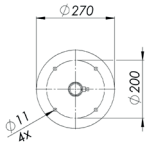
*N. P/B: number of pieces in box - N. P/C: number of pieces in carton*

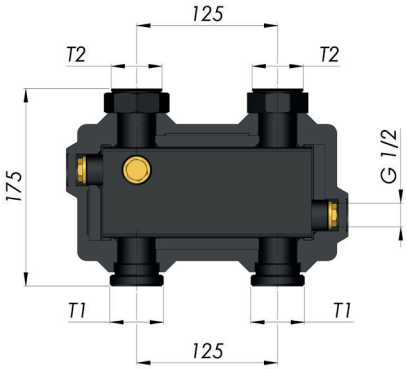


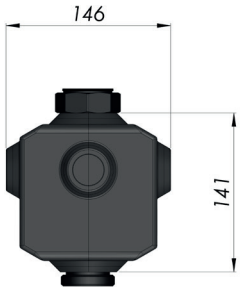

22M.01




F09




21M.01

| Series | Code | DN | Flow rate max [m³/h] | Power [kW] ΔT=10 K | Power [kW] ΔT=20 K | T1 | T2 | Volume [l] | Weight [kg] | N. P/B | N. P/C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **22M.01** | **22M** 040 000 01 | 25 | 4 | 46,5 | 93 | G 1 1/2 M | G 1 1/2 M | 3 | 3,6 | - | 1 |
| **21M.01** | **21M** 040 000 01 | 25 | 3 | 35 | 70 | G 1 1/2 M | G 1 1/2 RN | 1,1 | 2,5 | - | 1 |

*N. P/B: number of pieces in box - N. P/C: number of pieces in carton*

| Series | Code | DN | Flow rate max [m³/h] | Power [kW] ΔT=10 K | Power [kW] ΔT=20 K | T1 | T2 | L1 [mm] | L2 [mm] | L3 [mm] | Volume [l] | Weight [kg] | N. P/B | N. P/C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **F09** | **F09** 100 000 | 100 | 33 | 384 | 768 | DN 100 PN 16 | DN 100 PN 16 | 275 | 275 | 110 | 60 | 59 | - | 1 |
| | **F09** 150 000 | 150 | 74 | 861 | 1721 | DN 150 PN 16 | DN 150 PN 16 | 355 | 340 | 80 | 101 | 88 | - | 1 |

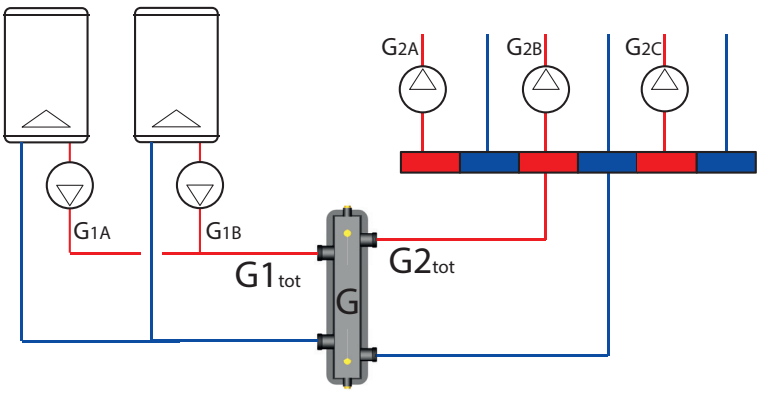
*N. P/B: number of pieces in box - N. P/C: number of pieces in carton*

## Hydraulic characteristics and sizing

For the maximum recommended flow rates as indicated in the previous tables, the head losses of the hydraulic separators are negligible. In this way, the hydraulic separator can be considered as an area with almost zero head losses, thus making independent the two circuits connected to it. The pumps on the primary side do not interfere with those on the secondary side.

**Sizing**

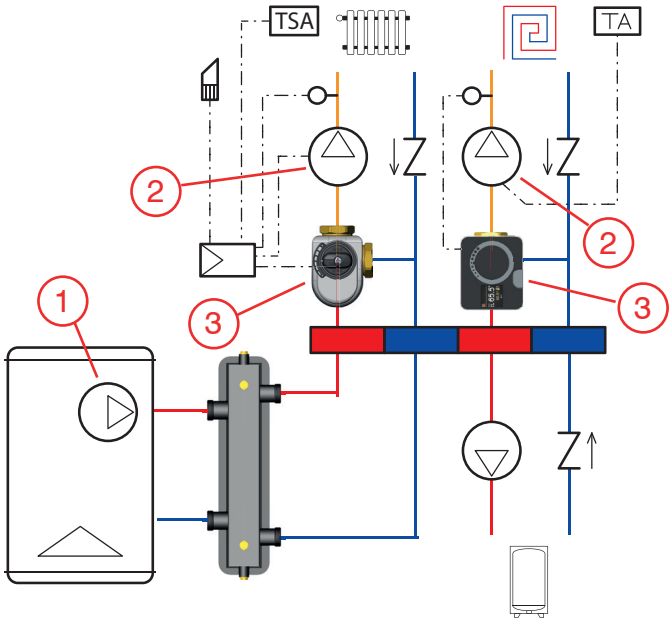
1) Calculate the total flow rate of the primary side ($G1_{tot}$) by summing the flow rates delivered by each single pump of the primary side:
$G1_{tot}=G_{1A}+G_{1B}+...$
2) Calculate the total flow rate of the secondary side ($G2_{tot}$) by summing the flow rates delivered by each single pump of the secondary side:
$G2_{tot}=G_{2A}+G_{2B}+G_{2C}+...$
3) Maximum system flow rate Gsys: it is equal to the higher between the two total flow rates just calculated
$Gsys=MAX\{G1_{tot}; G2_{tot}\}$
4) Select a hydraulic separator whose maximum flow rate G is equal or slightly higher than the maximum system flow rate Gsys:
$G \geq Gsys$



## Working way

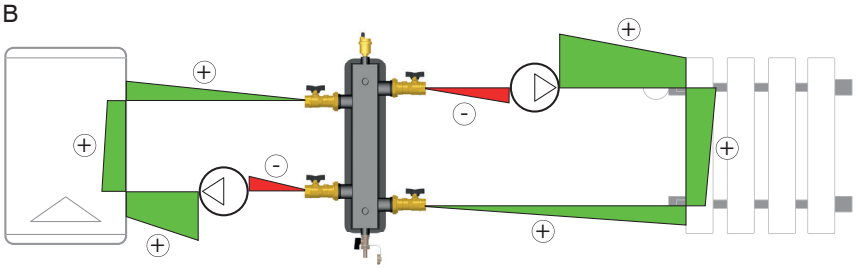
The hydraulic separator represents a disconnection between the pumps in the central heating (primary side) and those in the heating/cooling system (secondary side). It may be necessary in cases such as the following (fig. A):
- the pump in the central heating (1) is not able to directly supply the users, making it necessary to use additional pumps (2);
- in systems with thermal regulation via mixing valves (3), the pumps (2) at the service of (downstream of) the mixing valves would be in series with the pumps on the primary side (1), leading to sum the pump heads;
- in systems with thermal regulation via mixing valves (3), when the thermal comfort of the building is reached, the mixing valve partially or fully closes the hot water inlet from the generator (on going phase): the generator pump (1) could therefore get damaged when trying to supply flow rate towards the hot water inlet port of the mixing valve (3) which is (almost) completely closed.

A



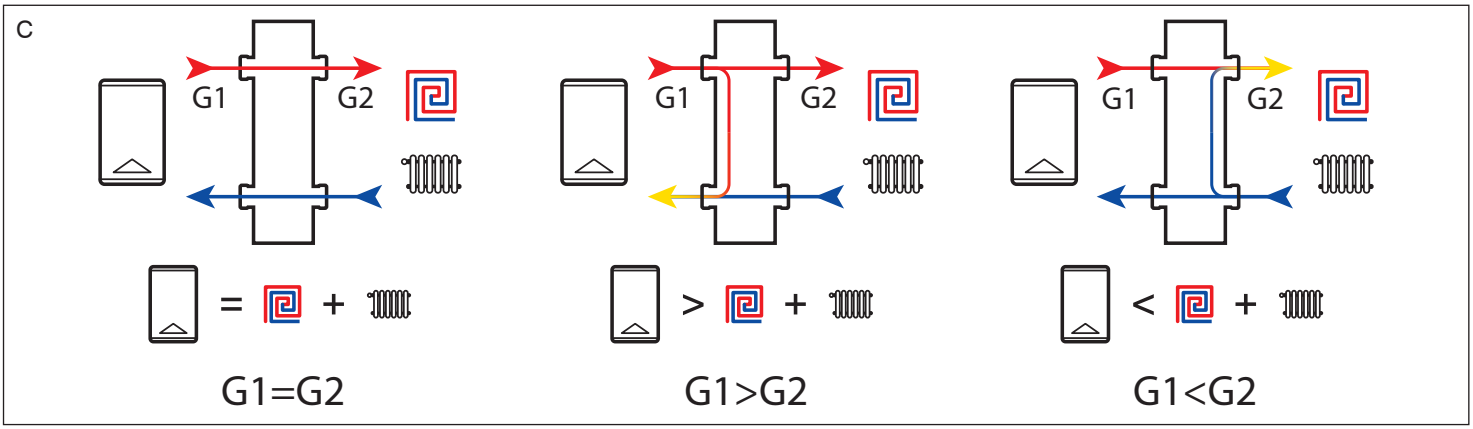

The hydraulic separator, consisting of a suitably sized storage, creates a “calm” zone in the circuit (very low transit speed of about 0,1-0,2 m/s) with almost zero head losses. This makes the primary side pumps independent from those of the secondary side, avoiding mutual interference (fig. B).
Two circuits are created: primary circuit from the generator to the separator chamber, secondary circuit from the separator chamber to the secondary systems, hydraulically independent.
The figure on the side shows the pressure trend in both the circuits. The pressure in the hydraulic separator will be equal to the hydrostatic pressure.

B



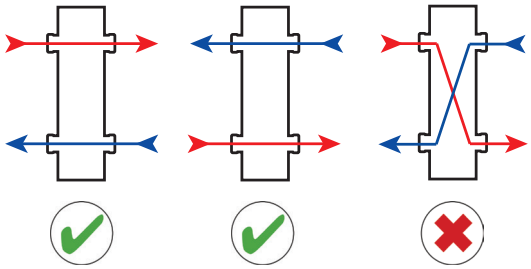
On the primary side one or more pumps can be present as well as on the secondary side one or more groups, with pump operating at different times (variable flow rate). Depending on the flow rate supplied by the primary pumps and the flow rate supplied by the pumps on the secondary side, there may be three operating phases (fig. C):
A) primary flow rate G1 = secondary flow rate G2: the flow rate passes through the separator and does not undergo temperature variations;
B) primary flow rate G1 > secondary flow rate G2: the excess primary flow rate recirculates in the separator chamber and returns to the generator. This results in an increase in the return temperature to the generator;
C) primary flow rate G1 < secondary flow rate G2: the missing flow rate for the secondary pumps is taken from the system return. This results in a lowering of the flow temperature to the secondary circuits.

C

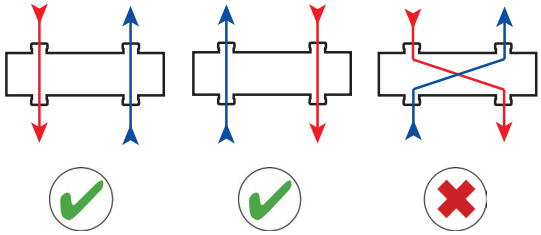


## Advantages

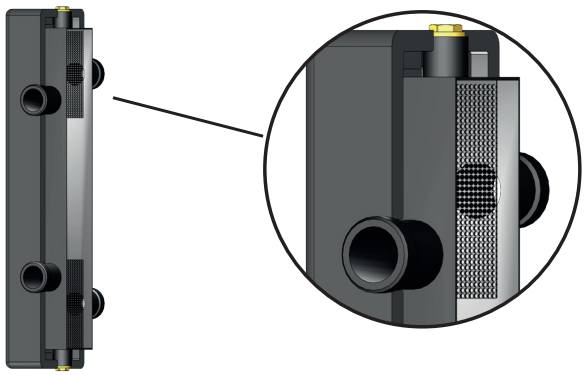
**Alignment of flows and returns/Versatility of connections.** Usually the upper connections are used for the boiler flow/flow to the secondary system and the lower connections for the return from the system/return to the boiler. However, it is possible to completely exchange the flows with the returns, avoiding however to cross the connections: only flows at the top and returns at the bottom or vice versa are allowed.



**Horizontal installation.** The P73.DN25, P73.DN32 and 22M.01 hydraulic separators can also be installed horizontally, respecting the rule of aligning the boiler flow with the system flow and, in the other connections, the two returns. The 21M.01 separator was specifically designed for horizontal installation but it can also be used vertically with the same rule.

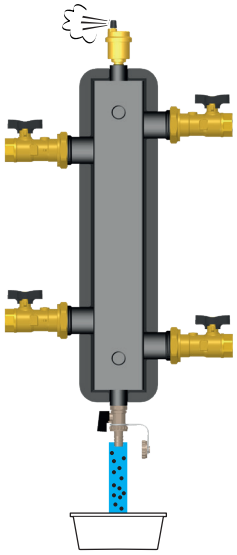


**Special features of the 22M.01 and F09.** These separators are equipped with a inner mesh which, by slowing down the flow, helps the separation of impurities towards the bottom and the aggregation of microbubbles, with consequent accumulation of air towards the top, from which it can be released with a specific air vent (optional). They are complete with test ports.

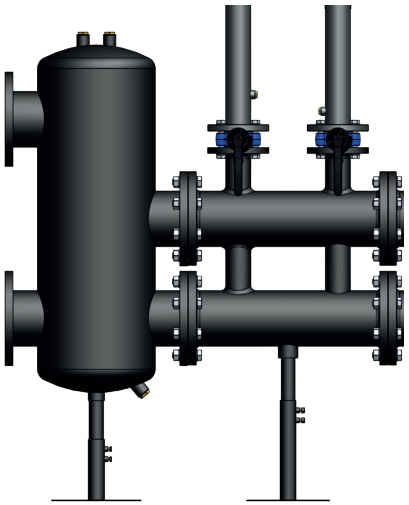


**Special features of the 21M.01.** It was designed to be immediately coupled to the DN 25 manifolds in horizontal position, thanks to the 125 mm centre distance of the connections and the running nuts on the secondary side. Complete with test ports.

**Dirt separation and deaeration.** Thanks to the body shape, hydraulic separators can represent also a collecting and discharge point for sludge in the lower side as well as an accumulation point for air microbubbles, that can be released by adding an optional air vent on the top.

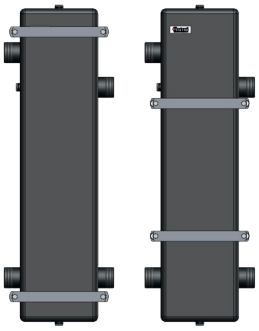


**Special features of the F09.** It was designed to be immediately coupled to the DN 100 and DN 150 manifolds. Equipped with PE-X insulation for heating and air-conditioning systems, G 1 F connections for optional devices such as air vent and fill/drain cock.

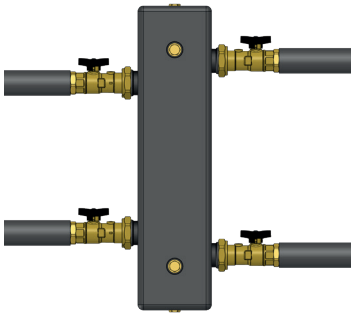


## Installation

In P73.DN25 and P73.DN32 separators, collar brackets can be placed in the middle of the connections or at the end.

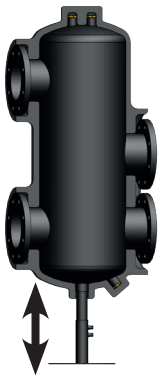


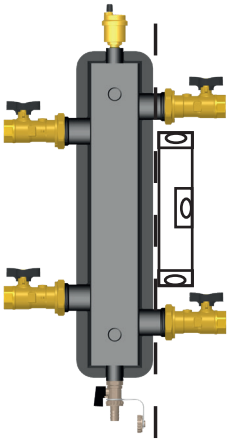
The 22M.01 separator does not include any brackets; it is installed by connecting it to the pipes that support its weight.



The vertical hydraulic separators 22M.01, P73.DN25 and P73.DN32 can also be installed horizontally. In this case it is no longer possible to apply the air vent at the end.

Flanged hydraulic separators are usually installed vertically, placing them on the ground using the telescopic support.



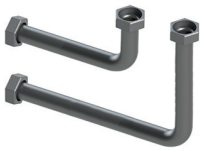


It is recommended to take care about the vertical installation in order to facilitate the correct functioning of the air vent with floating device (optional).

The installation procedure is described in the instructions.

## Accessories

### 20M.01



*Pipe connection kit between hydraulic separator 22M04000001 and manifolds P72 and V34*

Max working temperature: ***90 °C***
Max working pressure: ***10 bar***

| Code | Size | m³/h | |
|---|---|---|---|
| **20M** 040 000 01 | G 1 1/2 RN - G 1 1/2 RN | 3 | 1 |

### Y47L

*Automatic air vent.*

Max working temperature: ***95 °C***
Max working pressure: ***10 bar***

| Code | Size | | |
|---|---|---|---|
| **Y47** 010 000 L | G 3/8 M | 10 | 100 |
| **Y47** 015 000 L | G 1/2 M | 10 | 100 |
| **Y47** 020 000 L | G 3/4 M | 10 | 100 |
| **Y47** 025 000 L | G 1 M | 10 | 100 |

### P82

*Drain ball cock - with hose connection and plug*

Max working temperature: ***95 °C***
Max working pressure: ***16 bar***

| Code | Size | | |
|---|---|---|---|
| **P82** 015 N00 | G 1/2 M - G 3/4 M | 10 | 40 |

### 39D

*Ball shut-off valve with pump connection - male connection*

Max working temperature: ***95 °C***
Max working pressure: ***10 bar***

| Code | Size | Knob colour | | |
|---|---|---|---|---|
| **39D** 020 000 R | G 1 1/2 RN - G 1 1/2 M | black | - | 25 |

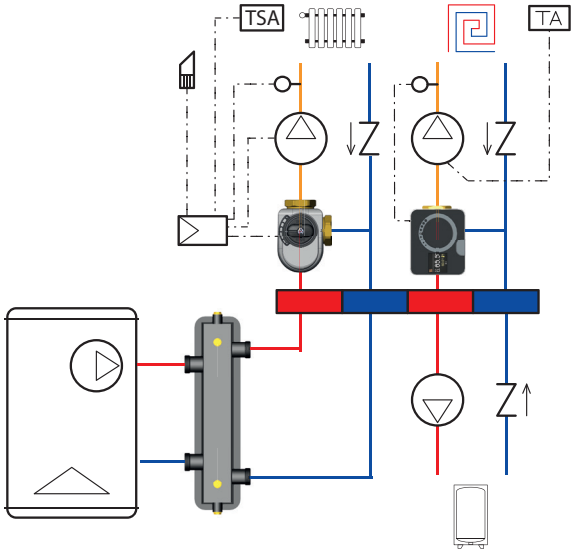
### 50D.M50

*Ball shut-off valve with pump connection with possibility of temperature gauge integration - male connection*

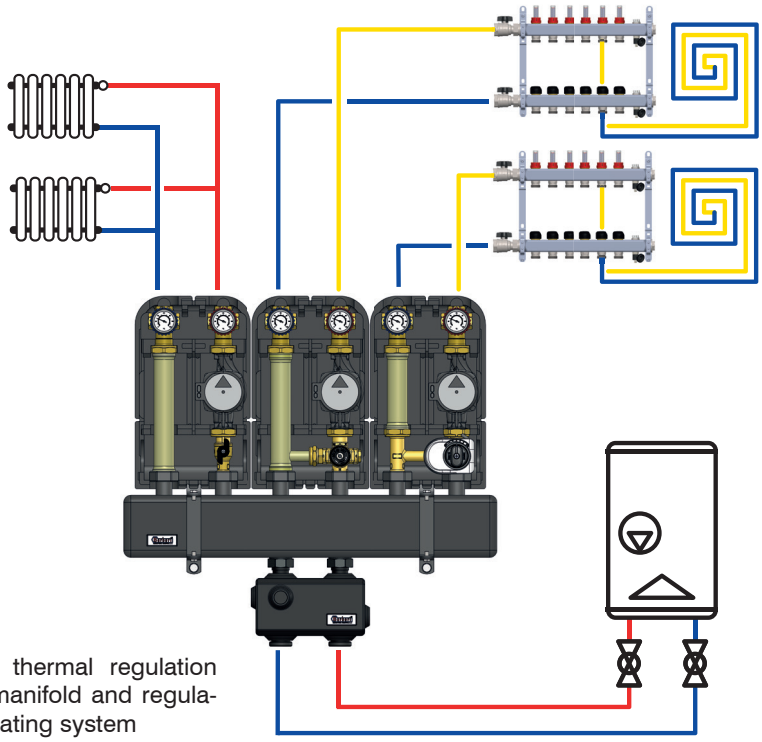
Max working temperature: ***95 °C***
Max working pressure: ***10 bar***

| Code | Size | Knob colour | | |
|---|---|---|---|---|
| **50D** M50 000 R | G 2 RN - G 2 M | red | - | 25 |

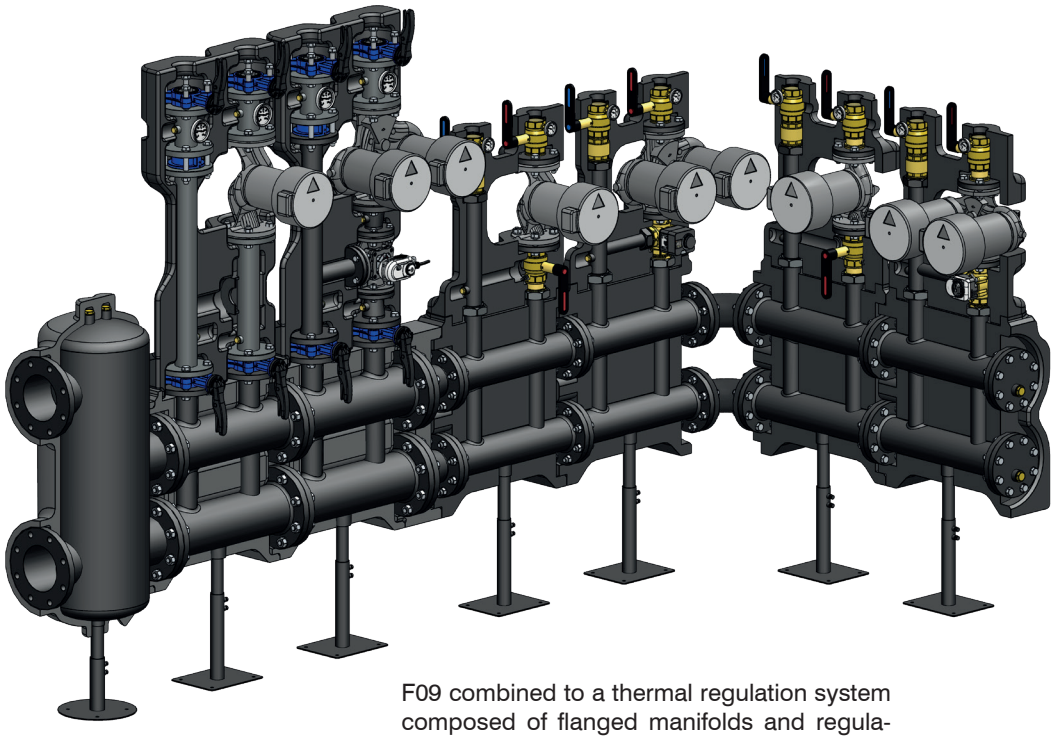
## System diagrams




22M.01 combined to a thermal regulation system composed of single parts (manifold, mixing valves, actuators etc)



21M.01 combined to a thermal regulation system composed of a manifold and regulating groups for central heating system



F09 combined to a thermal regulation system composed of flanged manifolds and regulating groups

## Specifications

**Series 21M.01**
Hydraulic separator with thermal insulation, DN 25, for horizontal and vertical installation. Complete with running nuts for the connection to the manifold. Painted steel body. Primary connections G 1 1/2 M, secondary connections G 1 1/2 RN with running nuts, test ports G 1/2 F. Connection centre distance 125 mm. Suitable fluids water for thermal systems, glycol solutions (max 30%). Working temperature range 0–110 °C. Maximum working pressure 6 bar. EPP insulation.

**Series 22M.01**
Hydraulic separator with thermal insulation, DN 25, with inner mesh to help deaeration and dirt separation. Painted steel body. Connections G 1 1/2 M, test and accessory ports G 1/2 F. Suitable fluids water for thermal systems, glycol solutions (max 30%). Working temperature range 0–110 °C. Maximum working pressure 10 bar. EPP insulation.

**Series P73.DN25**
Hydraulic separator with thermal insulation, DN 25, with wall mounting brackets. Painted steel body. Connections G 1 1/2 M, test and accessory ports Rp 1/2. Suitable fluids water for thermal systems, glycol solutions (max 50%). Working temperature range -10–110 °C. Maximum working pressure 4 bar. EPP insulation.

**Series P73.DN32**
Hydraulic separator with thermal insulation, DN 32, with wall mounting brackets. Painted steel body. Connections G 2 M, test and accessory ports Rp 1/2. Suitable fluids water for thermal systems, glycol solutions (max 50%). Working temperature range -10–110 °C. Maximum working pressure 4 bar. EPP insulation.

**Series F09**
Flanged hydraulic separator with thermal insulation, telescopic floor support, inner mesh to help deaeration and dirt separation, for heating and air-conditioning systems. Painted steel body. Flanged connections DN 100 PN 16 (and DN 150 PN 16), test ports G 1 F. Primary/secondary connection centre distance 600/300 mm. Suitable fluids water for thermal systems, glycol solutions (max 50%). Working temperature range 0–110 °C. Maximum working pressure 6 bar. Insulation in closed cell expanded PE-X.

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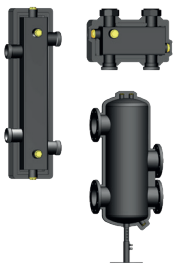
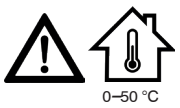


# 21M.01-22M.02-20M.01
# P73.DN25-P73.DN32
# F09




Sicurezza
Safety
Безопасность
Sicherheit
Sécurité
Seguridad
http://barberi.it/materiale/PDF/Safety.pdf

dal 1954 made in Italy
Barberi®
RUBINETTERIE INDUSTRIALI s.r.l.
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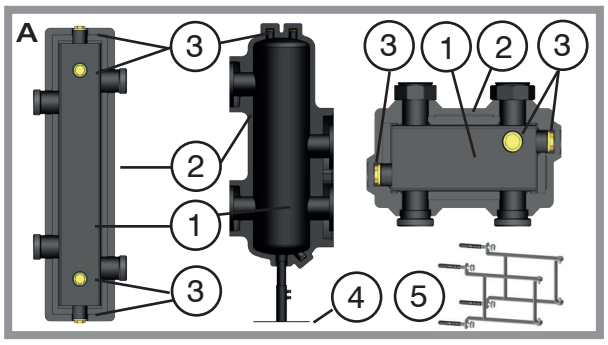
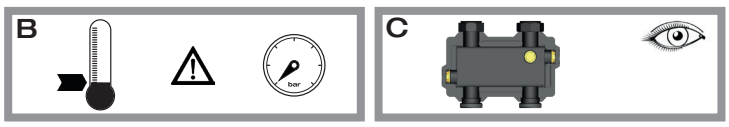
+39 0163 48284
@barberi.italy

| Series | Code | Connections | DN | m³/h | Weight [kg] |
|---|---|---|---|---|---|
| 21M.01 | 21M 040 000 01 | G 1 1/2 M-G 1 1/2 RN | 25 | 3 | 2,5 |
| 22M.01 | 22M 040 000 01 | G 1 1/2 M-G 1 1/2 M | 25 | 4 | 3,6 |
| P73.DN25 | P73 M40 030 | G 1 1/2 M-G 1 1/2 M | 25 | 3 | 5 |
| | P73 M40 045 | G 1 1/2 M-G 1 1/2 M | 25 | 4,5 | 5,85 |
| P73.DN32 | P73 M50 080 | G 2 M-G 2 M | 32 | 8 | 13,5 |
| F09 | F09 100 000 | DN 100 PN 16 | 100 | 33 | 57,9 |
| | F09 150 000 | DN 150 PN 16 | 150 | 74 | 88 |
| 20M.01 | 20M 040 000 01 | G 1 1/2 RN-G 1 1/2 RN | 25 | - | 3 |

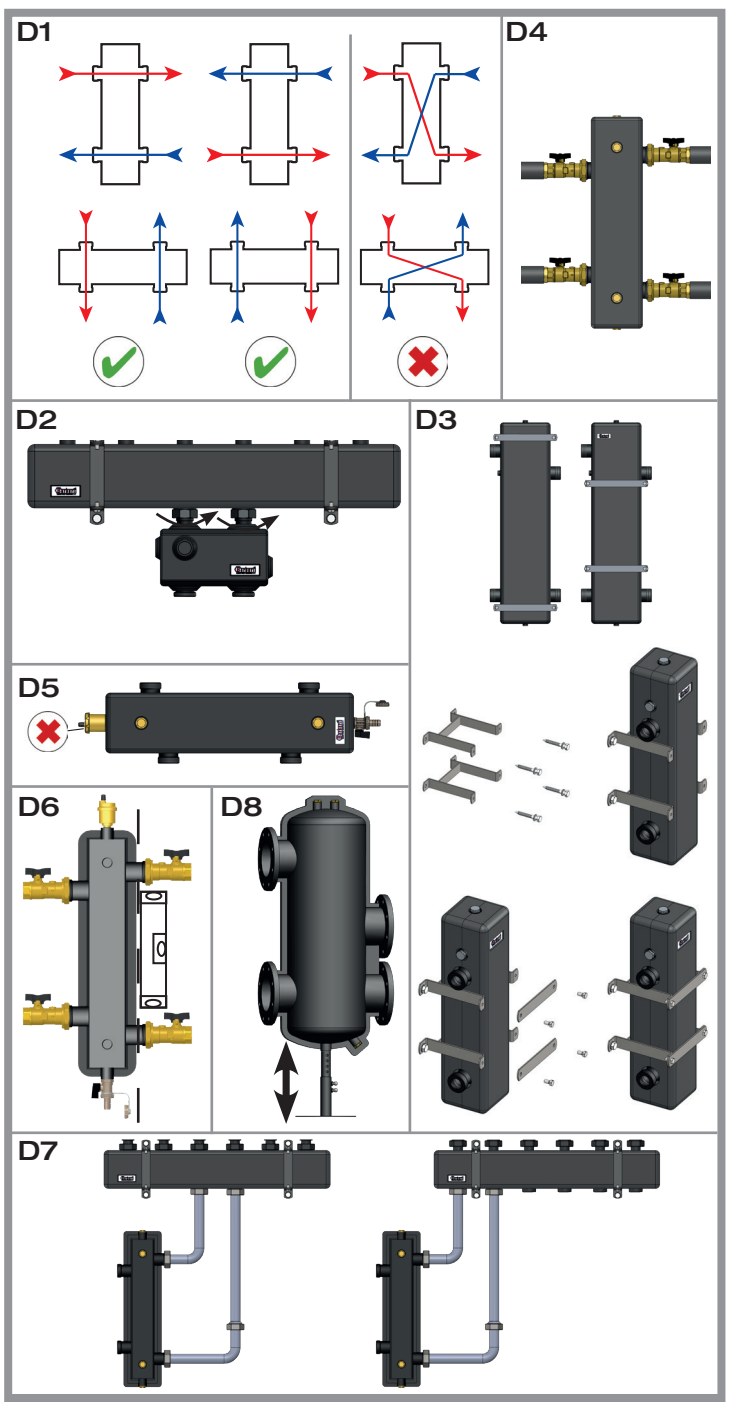


**ATTENZIONE: PRODOTTO PESANTE.**
Movimentare manualmente secondo le norme vigenti riguardanti la tutela della salute e della sicurezza nei luoghi di lavoro.

**WARNING: HEAVY DEVICE.**
Handle manually according to current regulations regarding the protection of health and safety in workplaces.

**ВНИМАНИЕ! ТЯЖЕЛОЕ ИЗДЕЛИЕ**
*Перемещать вручную в соответствии с действующими нормативными актами по технике безопасности и охране здоровья на рабочем месте.*




## ISTRUZIONI PER L'INSTALLAZIONE, L'USO E LA MANUTENZIONE

*Vi ringraziamo per aver scelto un prodotto Barberi.*
*Ulteriori informazioni sul prodotto sono a disposizione sul sito www.barberi.it*

### SEPARATORI IDRAULICI

**AVVERTENZE**
*Questo manuale di istruzioni deve essere letto e compreso prima di installare o manutenere il prodotto.*

*Significato del simbolo* ⚠: **ATTENZIONE! IL MANCATO RISPETTO DI QUESTE ISTRUZIONI POTREBBE DARE ORIGINE A PERICOLO PER PERSONE, ANIMALI, COSE!**

**SICUREZZA**
*É obbligatorio seguire le istruzioni di sicurezza descritte nell'apposito documento visibile tramite QR code.*
**LASCIARE QUESTO MANUALE A DISPOSIZIONE DELL'UTENTE.**
**SMALTIRE SECONDO LE NORME VIGENTI.**

**DESCRIZIONE**
*I separatori idraulici rendono indipendenti le pompe del lato primario dalle pompe del lato secondario, evitando reciproche interferenze.*

**CARATTERISTICHE TECNICHE**
**Prestazioni**
*Campo di temperatura di esercizio:*
*- P73.DN25, P73.DN32:*
*-10–110 °C (escluso gelo)*
*- 21M.01, 22M.01: 0–110 °C (escluso gelo)*
*- F09: 0–110 °C (escluso gelo)*
*Pressione massima di esercizio:*
*- P73.DN25, P73.DN32: 4 bar*
*- 22M.01: 10 bar*
*- 21M.01, F09: 6 bar*
*Fluidi compatibili: acqua per impianti termici, soluzioni glicolate (max 30% per 21M.01 e 22M.01, max 50% per P73.DN25, P73.DN32 e F09)*
*Attacchi: femmina EN 10226-1/maschio ISO 228-1/flangiati EN 1092 PN 16*
*Interasse attacchi:*
*- 21M.01: 125 mm*
*- F09 (primario/secondario): 600/300 mm*

**Materiali**
*Corpo e raccordi: acciaio verniciato*
*Tappi: ottone CW617N*
*Guarnizioni: EPDM, fibra*
*Coibentazione (21M.01, 22M.01, P73.DN25, P73.DN32):*
*Materiale: EPP*
*Densità: 38 kg/m³*
*Spessore: 37 mm*
*Conduttività termica: 0,039 W/mK*
*Coibentazione (F09):*
*Materiale: PE-X espanso a celle chiuse*
*Spessore: 30 mm*
*Densità: 30-80 kg/m³ (interna-esterna)*
*Conducibilità termica (ISO 2581):*
*- 0,036-0,043 W/(m·K) (10 °C) (interna-esterna)*
*- 0,041-0,047 W/(m·K) (40 °C) (interna-esterna)*
*Coefficiente di resistenza alla diffusione di vapore (ISO 12572): 1300*

**INSTALLAZIONE: INFORMAZIONI GENERALI**
**A) Componenti.** *(1) Corpo, (2) coibentazione, (3) prese di controllo o per accessori, (4) supporto telescopico a pavimento, (5) staffe.*
**B) Montaggio e smontaggio:** *eseguire ad impianto freddo e non in pressione.*
**C) Accessibilità:** *non ostacolare l'accesso e la visibilità del dispositivo per permettere operazioni di verifica e manutenzione al dispositivo od al resto della componentistica.*

**INSTALLAZIONE**
**D1) Allineamento delle mandate e ritorni/Posizione di installazione.** *Utilizzare gli attacchi superiori per la mandata caldaia/mandata all'impianto secondario e gli attacchi inferiori per il ritorno dall'impianto/ritorno in caldaia. E' possibile scambiare completamente le mandate coi ritorni, evitando di incrociare gli attacchi.*
*I separatori idraulici DN 25 e DN 32 possono essere installati anche in orizzontale, rispettando la regola di allineare le mandate ed i ritorni.*
**D2)** *Il separatore 21M.01 può essere avvitato direttamente al collettore DN 25.*
**D3)** *Nei separatori DN 25 è possibile posizionare le staffe a collare sia in mezzo agli attacchi che alle estremità.*
*Fissare le staffe a muro e poi inserire il separatore con la coibentazione. Chiudere le staffe con le viti in dotazione.*
**D4) Il separatore sprovvisto di staffe a corredo viene installato direttamente sulla tubazione che ne sorregge il peso.**
**D5)** *I separatori idraulici verticali DN 25 e DN 32 possono essere installati anche in orizzontale. In questo caso non è più possibile applicare la valvola di sfogo aria (opzionale) all'estremità.*
**D6)** *Si raccomanda di curare l'installazione in verticale in modo da favorire il corretto funzionamento dell'eventuale valvola di sfogo aria a galleggiante (opzionale).*
**D7)** *Il kit 20M.01 consente di collegare il separatore 22M.01 ai collettori DN 25. Avvitare le calotte al separatore e al collettore.*
**D8)** *I separatori idraulici flangiati vengono solitamente installati in verticale, appoggiandoli a terra mediante il supporto telescopico.*
**E1-E3) Installazione dei separatori flangiati**
**E1)** *Con il separatore ancora coricato, avvitare a fondo il tubo del supporto a terra al separatore.*
*Inserire il tubo nel piedestallo, regolare l'altezza del supporto telescopico e bloccarlo in posizione avvitando le due viti (brugola 8 mm).*
**E2)** *Sollevare il separatore e posizionarlo vicino alla tubazione di monte a cui va collegato.*
*Avvitare a fondo il collettore alla tubazione.*
*Ricavare i fori a terra, regolare l'altezza del supporto telescopico in modo definitivo, stringere a fondo le due viti (brugola 8 mm) di bloccaggio del supporto.*
**E3)** *Fissare a terra il supporto telescopico mediante viti e tasselli (non forniti in confezione).*

## INSTRUCTIONS FOR INSTALLATION, USE AND MAINTENANCE

*Thank you for choosing a Barberi product.*
*Additional information about the device are available on the website www.barberi.it*

### HYDRAULIC SEPARATORS

**WARNINGS**
*This instruction sheet must be read and understood before installing and maintaining the product.*

*Meaning of the symbol* ⚠: **ATTENTION! FAILURE TO FOLLOW THESE INSTRUCTIONS COULD BE ORIGIN OF DANGER FOR PEOPLE, ANIMALS AND THINGS!**

**SAFETY**
*It is compulsory to follow the safety instructions described in the specific document linked via QR code.*
**LEAVE THIS MANUAL FOR THE USER.**
**DISPOSE OF ACCORDING TO THE REGULATIONS IN FORCE.**

**DESCRIPTION**
*Hydraulic separators make the pumps of the primary side independent from the pumps of the seconday side, thus avoiding any mutual interference.*

**TECHNICAL CHARACTERISTICS**
**Performance**
*Working temperature range:*
*- P73.DN25, P73.DN32:*
*-10–110 °C (no frost)*
*- 21M.01, 22M.01:*
*0–110 °C (no frost)*
*- F09: 0–110 °C (no frost)*
*Maximum working pressure:*
*- P73.DN25, P73.DN32: 4 bar*
*- 22M.01: 10 bar*
*- 21M.01, F09: 6 bar*
*Suitable fluids: water for thermal systems, glycol solutions (max 30% for 21M.01 and 22M.01, max 50% for P73.DN25, P73.DN32 and F09)*
*Connections: female EN 10226-1/male ISO 228-1/flanged EN 1092 PN 16*
*Connection centre distance:*
*- 21M.01: 125 mm*
*- F09 (primary/secondary): 600/300 mm*

**Materials**
*Body and fittings: painted steel*
*Plugs: brass CW617N*
*Gaskets: EPDM, fiber*
*Insulation (21M.01, 22M.01, P73.DN25, P73.DN32):*
*Material: PPE*
*Density: 38 kg/m³*
*Thickness: 37 mm*
*Thermal conductivity: 0,039 W/mK*
*Insulation (F09):*
*Material: closed cell expanded PE-X*
*Thickness: 30 mm*
*Density: 30-80 kg/m³ (inner-outer)*
*Thermal conductivity (ISO 2581):*
*- 0,036-0,043 W/(m·K) (10 °C) (inner-outer)*
*- 0,041-0,047 W/(m·K) (40 °C) (inner-outer)*
*Coefficient of resistance to water vapour diffusion (ISO 12572): 1300*

**INSTALLATION: GENERAL INFORMATION**
**A) Components.** *(1) Body, (2) insulation, (3) test or accessory ports, (4) telescopic floor support, (5) brackets.*
**B) Assembling and disassembling:** *to be performed with system cold and without pressure.*
**C) Accessibility:** *do not obstruct the access and visibility to the device in order to allow check and maintenance operations to the device or other components.*

**INSTALLATION**
**D1) Flow and return alignment/Installation position.** *Use the upper connections for the boiler flow/flow to the secondary system and the lower connections for the return from the system/return to the boiler. It's possible to completely exchange the flows with the returns, avoiding to cross the connections.*
*The DN 25 and DN 32 hydraulic separators can also be installed horizontally, respecting the rule of aligning the flows and returns.*
**D2)** *The 21M.01 separator can be directly screwed to the DN 25 manifold.*
**D3)** *In the DN 25 separators it's possible to place the collar brackets both between the connections and at the ends. Install the brackets onto the walls, then insert the separator with the insulation. Close the brakets with the provided screws.*
**D4) The separator without brackets is installed directly on the pipes that support its weight.**
**D5)** *The vertical hydraulic separators can also be installed horizontally. In this case it is no longer possible to apply the (optional) air vent at the end.*
**D6)** *It is recommended to take care about the vertical installation in order to facilitate the correct functioning of the air vent with floating device (optional).*
**D7)** *The 20M.01 kit allows to connect the 22M.01 separator to the DN 25 manifolds. Screw the nuts to the separator and manifolds.*
**D8)** *Flanged hydraulic separators are usually installed vertically, placing them on the ground using the telescopic support.*
**E1-E3) Installation of flanged separators**
**E1)** *With the separator still lying down, screw the floor support pipe firmly into the separator.*
*Insert the pipe into the pedestal, adjust the height of the telescopic support and lock it in position by tightening the two screws (8 mm Allen key).*
**E2)** *Lift the separator and position it near the upstream pipe to to be connected to.*
*Fully screw the separator to the pipe.*
*Drill holes in the floor, adjust the height of the telescopic support definitively, fully tighten the two screws (8 mm Allen key) securing the support.*
**E3)** *Fix the telescopic support to the floor using screws and anchorages (not supplied in the package).*

## РУКОВОДСТВО ПО УСТАНОВКЕ, ЭКСПЛУАТАЦИИ И ТЕХОБСЛУЖИВАНИЮ

*Благодарим вас за выбор изделия Barberi.*
*Дополнительную информацию об изделии см. на сайте www.barberi.it*

### ГИДРАВЛИЧЕСКИЕ РАЗДЕЛИТЕЛИ

**ПРЕДУПРЕЖДЕНИЯ**
*Перед тем как приступать к установке или техобслуживанию изделия, необходимо внимательно прочитать настоящее руководство.*

*Значение символа* ⚠: **ВНИМАНИЕ! НЕСОБЛЮДЕНИЕ УКАЗАНИЙ, ПРИВЕДЕННЫХ В НАСТОЯЩЕМ РУКОВОДСТВЕ, МОЖЕТ СОЗДАТЬ ОПАСНУЮ СИТУАЦИЮ ДЛЯ ЛЮДЕЙ, ЖИВОТНЫХ И МАТЕРИАЛЬНЫХ ЦЕННОСТЕЙ!**

**БЕЗОПАСНОСТЬ**
*Соблюдение требований безопасности, описанных в соответствующем документе, который можно считать с помощью QR-кода, является обязательным.*
**НАСТОЯЩЕЕ РУКОВОДСТВО ОСТАЕТСЯ В РАСПОРЯЖЕНИИ ПОЛЬЗОВАТЕЛЯ.**
**УТИЛИЗАЦИЯ ДОЛЖНА ВЫПОЛНЯТЬСЯ СОГЛАСНО ДЕЙСТВУЮЩИМ НОРМАТИВАМ.**

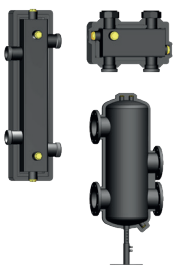
**ОПИСАНИЕ**
*Гидравлические разделители делают насосы на стороне первичного контура независимыми от насосов на стороне вторичного контура, чтобы исключить их влияние друг на друга.*

**ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ**
**Эксплуатационные параметры**
*Диапазон рабочей температуры:*
*- P73.DN25, P73.DN32:*
*-10–110 °C (без замерзания)*
*- 21M.01, 22M.01: 0–110 °C (без замерзания)*
*- F09: 0–110 °C (без замерзания)*
*Максимальное рабочее давление:*
*- P73.DN25, P73.DN32: 4 bar*
*- 22M.01: 10 bar*
*- 21M.01, F09: 6 bar*
*Совместимые рабочие жидкости: вода для систем отопления, гликолевые растворы (макс. 30% для арт. 21M.01 и 22M.01, макс. 50% для арт. P73.DN25, P73.DN32 и F09)*
*Фитинги: с внутренней резьбой EN 10226-1/с наружной резьбой ISO 228-1/фланцевые EN 1092 PN 16*
*Межосевое расстояние между фитингами:*
*- 21M.01: 125 mm*
*- F09 (сторона первичного контура/сторона вторичного контура): 600/300 mm*

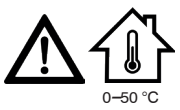
**Материалы**
*Корпус и фитинги: окрашенная сталь*
*Заглушки: латунь CW617N*
*Прокладки: EPDM, волокно*
*Теплоизоляция (21M.01, 22M.01, P73.DN25, P73.DN32):*
*Материал: EPP*
*Плотность: 38 kg/m³*
*Толщина: 37 mm*
*Теплопроводность: 0,039 W/mK*
*Теплоизоляция (F09):*
*Материал: Вспененный полиэтилен PE-X с закрытыми ячейками*
*Толщина: 30 mm*
*Плотность: 30-80 kg/m³ (внутренняя-наружная часть)*
*Теплопроводность (ISO 2581):*
*- 0,036-0,043 W/(m·K) (10 °C) (внутренняя-наружная часть)*
*- 0,041-0,047 W/(m·K) (40 °C) (внутренняя-наружная часть)*
*Коэффициент паропроницаемости (ISO 12572): 1300*

**УСТАНОВКА: ОБЩАЯ ИНФОРМАЦИЯ**
**A) Компоненты.** *(1) Корпус, (2) теплоизоляция, (3) фитинги для подсоединения измерительных приборов или дополнительных принадлежностей, (4) напольная телескопическая опора, (5) кронштейны.*
**B) Монтаж и демонтаж:** *выполняйте на холодной системе, не находящейся под давлением.*
**C) Обеспечение доступа:** *для обеспечения возможности выполнения проверок и техобслуживания данного устройства и других компонентов не создавайте препятствий для доступа и видимости.*

**УСТАНОВКА**
**D1) Соосное расположение фитингов в линиях подачи и возврата /Гибкость установки.** *Используйте верхние фитинги для подсоединения к линиям подачи из котла/подачи в систему, а нижние фитинги - для подсоединения к линиям возврата из системы/возврата в котел. Можно полностью менять местами фитинги линий подачи и возврата, не допуская однако их перекрестного расположения.*
*Гидравлические разделители DN 25 и DN 32 могут также устанавливаться в горизонтальном положении, при условия соблюдения правила соосного расположения фитингов в линиях подачи и возврата.*
**D2)** *Разделитель 21M.01 можно прикручивать непосредственно к коллектору DN 25.*
**D3)** *На разделителях DN 25 крепежные кронштейны могут устанавливаться как между фитингами, так и по краям.*
***Прикрепите кронштейны к стене, затем вставьте в них разделитель с теплоизоляционным кожухом. Затяните хомуты кронштейнов винтами, входящими в комплект поставки.***
**D4) Разделитель, в комплект поставки которого не входят крепежные кронштейны, непосредственно подсоединяется к трубопроводам, которые и выдерживают его вес.**
**D5)** *Вертикальные гидравлические разделители DN 25 и DN 32 могут устанавливаться также и в горизонтальном положении. В этом случае установка воздухоотводчика (опционального) на оконечности разделителя становится невозможной.*
**D6)** *При установке в вертикальном положении рекомендуется уделять особое внимание обеспечению правильной работы поплавкового воздухоотводчика (опционального).*
**D7)** *Комплект 20M.01 позволяет подсоединять разделитель 22M.01 к коллекторам DN 25. Прикрутите накидные гайки к разделителю и к коллектору.*
**D8)** *Фланцевые гидравлические разделители обычно устанавливаются вертикально с помощью напольной телескопической опоры.*
**E1-E3) Установка фланцевых разделителей**
**E1)** *При еще лежащем на полу разделителе прикрутите к нему до упора стойку напольной опоры.*
*Вставьте стойку в основание, отрегулируйте высоту телескопической опоры и заблокируйте ее в нужном положении, закрутив оба винта (с шестигранным шлицем 8 mm).*
**E2)** *Поднимите разделитель и разместите его рядом с трубопроводом, который должен быть подсоединен к его входу.*
*Прикрутите до упора коллектор к трубопроводу.*
*Просверлите отверстия в полу, окончательно отрегулируйте высоту телескопической опоры и затяните до упора оба ее крепежных винта (с шестигранным шлицем 8 mm).*
**E3)** *Прикрепите к полу телескопическую опору с помощью болтов и дюбелей (не входящих в комплект поставки).*



# 21M.01-22M.02-20M.01
# P73.DN25-P73.DN32
# F09




Sicurezza
Safety
Безопасность
Sicherheit
Sécurité
Seguridad
http://barberi.it/materiale/PDF/Safety.pdf

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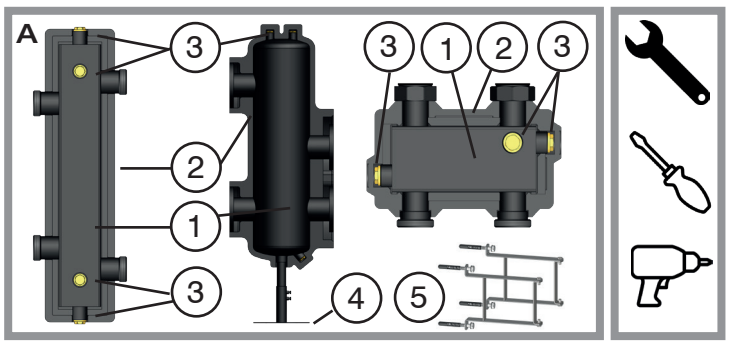
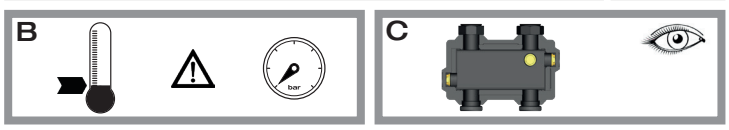
+39 0163 48284
@barberi.italy

| Series | Code | Connections | DN | m³/h | Weight [kg] |
|---|---|---|---|---|---|
| 21M.01 | 21M 040 000 01 | G 1 1/2 M-G 1 1/2 RN | 25 | 3 | 2,5 |
| 22M.01 | 22M 040 000 01 | G 1 1/2 M-G 1 1/2 M | 25 | 4 | 3,6 |
| P73.DN25 | P73 M40 030 | G 1 1/2 M-G 1 1/2 M | 25 | 3 | 5 |
| | P73 M40 045 | G 1 1/2 M-G 1 1/2 M | 25 | 4,5 | 5,85 |
| P73.DN32 | P73 M50 080 | G 2 M-G 2 M | 32 | 8 | 13,5 |
| F09 | F09 100 000 | DN 100 PN 16 | 100 | 33 | 57,9 |
| | F09 150 000 | DN 150 PN 16 | 150 | 74 | 88 |
| 20M.01 | 20M 040 000 01 | G 1 1/2 RN-G 1 1/2 RN | 25 | - | 3 |

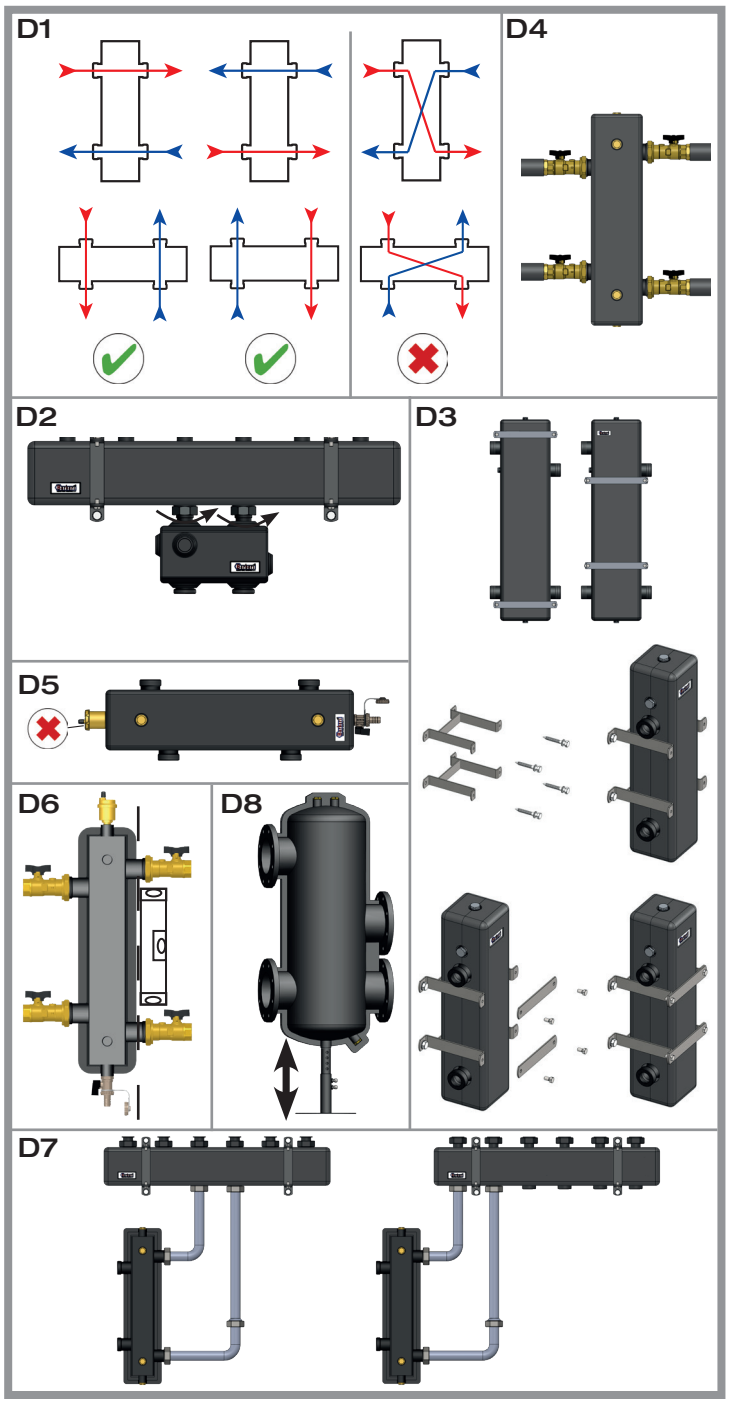


**ACHTUNG: SCHWERES PRODUKT.**
Manuell unter Berücksichtigung der geltenden Vorschriften für Gesundheit und Sicherheit am Arbeitsplatz bewegen.

**ATTENTION : ARTICLE LOURD.**
Manipuler manuellement selon la réglementation en vigueur en matière de protection de la santé et de la sécurité au travail.

**ATENCIÓN: PRODUCTO PESADO.**
Manipular manualmente según las normas vigentes en materia de protección de la salud y la seguridad en los lugares de trabajo.




## INSTALLATIONS-, BETRIEBS- UND WARTUNGSANLEITUNG

*Vielen Dank, dass Sie sich für ein Produkt von Barberi entschieden haben. Weitere Informationen über das Produkt erhalten Sie auf unserer Website www.barberi.it*

### HYDRAULISCHE WEICHEN

**HINWEISE**
*Vor der Installation oder Wartung eines Produkts muss diese Betriebsanleitung gelesen und verstanden werden.*

*Bedeutung des Symbols* ⚠: **ACHTUNG! BEI NICHTBEACHTUNG DER NACH DIESEM SYMBOL STEHENDEN HINWEISE BESTEHT DIE GEFAHR VON VERLETZUNG VON MENSCHEN UND TIEREN SOWIE VON SACHSCHÄDEN!**
**SICHERHEIT**
*Die über den QR-Code einsehbaren Sicherheitshinweise müssen unbedingt beachtet werden.*
**DIESE BEDIENUNGSANLEITUNG MUSS IMMER AN EINER FÜR DEN BENUTZER LEICHT ZUGÄNGLICHEN STELLE AUFBEWAHRT WERDEN. FÜR DIE ENTSORGUNG SIND DIE EINSCHLÄGIGEN NORMEN ZU BEACHTEN.**

**BESCHREIBUNG**
*Durch die hydraulischen Weichen sind die Pumpen auf der Primärseite unabhängig von den Pumpen auf der Sekundärseite, so dass eine gegenseitige Beeinflussung vermieden wird.*

**TECHNISCHE EIGENSCHAFTEN**
**Leistungen**
*Betriebstemperaturbereich:*
*- P73.DN25, P73.DN32: -10–110 °C (mit Ausnahme von Frost)*
*- 21M.01, 22M.01: 0–110 °C (mit Ausnahme von Frost)*
*- F09: 0–110 °C (mit Ausnahme von Frost)*
*Maximaler Betriebsdruck:*
*- P73.DN25, P73.DN32: 4 bar*
*- 22M.01: 10 bar*
*- 21M.01, F09: 6 bar*
*Kompatible Fluide: Wasser für Heizungsanlagen, Glykollösungen (max. 30% für 21M.01 und 22M.01, max. 50% für P73.DN25, P73.DN32 und F09)*
*Gewindeanschlüsse: Innengewinde EN 10226-1/ Außengewinde ISO 228-1/ Flansche EN 1092 PN 16*
*Mittenabstand der Anschlüsse:*
*- 21M.01: 125 mm*
*- F09 (Primär/Sekundär): 600/300 mm*

**Materialien**
*Gehäuse und Anschlüsse: lackierter Stahl*
*Deckel: Messing CW617N*
*Dichtungen: EPDM, Faser*
*Isolierung (21M.01, 22M.01, P73.DN25, P73.DN32):*
*Material: EPP*
*Dichte: 38 kg/m³*
*Stärke: 37 mm*
*Wärmeleitfähigkeit: 0,039 W/mK*
*Isolierung (F09): Material: Geschlossenzelliger PE-X-Schaumstoff*
*Stärke: 30 mm*
*Dichte: 30-80 kg/m³ (innen-außen)*
*Wärmeleitfähigkeit (ISO 2581):*
*- 0,036-0,043 W/(m·K) (10 °C) (innen-außen)*
*- 0,041-0,047 W/(m·K) (40 °C)(innen-außen)*
*Dampfdiffusionswiderstandszahl (ISO 12572) : 1300*

**INSTALLATION: ALLGEMEINE INFORMATIONEN**
**A) Komponenten.** *(1) Gehäuse, (2) Isolierung, (3) Kontroll- oder Zubehöranschluss, (4) Teleskopstütze für Bodenbefestigung, (5) Bügel.*
**B) Montage- und Demontagearbeiten:** *Die Montage- und Demontagearbeiten müssen immer bei abgekühlter und nicht unter Druck stehenden Anlage erfolgen.*
**C) Zugang:** *Den Zugang zur Anlage und die Sicht nicht behindern, um Überprüfungs- und Wartungsarbeiten an der Anlage oder an den Bauteilen zu ermöglichen.*

**INSTALLATION**
**D1) Ausrichtung von Vor- und Rücklauf/Installationspositionen.** *Die oberen Anschlüsse für den Vorlauf des Warmwasserspeichers/ Vorlauf zur Sekundäranlage und die unteren Anschlüsse für den Rücklauf aus der Anlage/Rücklauf in den Warmwasserspeicher benutzen. Vor- und Rückläufe können komplett vertauscht werden, wobei nur die Anschlüsse nicht überkreuzt werden dürfen.*
*Die hydraulischen Weichen DN 25 und DN 32 können auch waagrecht installiert werden, unter der Bedingung, dass Vor- und Rückläufe ausgerichtet sind.*
**D2)** *Die Weiche 21M.01 kann direkt auf den Heizkreisverteiler DN 25 aufgeschraubt werden.*
**D3)** *In den Weichen DN 25 können die Manschettenhalterungen sowohl in der Mitte der Anschlüsse als auch außen installiert werden. Die Bügel an der Wand befestigen und danach die Weiche mit der Isolierung anbringen. Die Halterungen mit den im Lieferumfang enthaltenen schrauben schließen.*
**D4) Die Weiche ohne Halterungen wird durch Anschluss an die Rohrleitung installiert, die für ihr Gewicht geeignet ist.**
**D5)** *Die senkrechten hydraulischen Weichen DN 25 und DN 32 können auch waagrecht installiert werden. In diesem Fall ist es nicht mehr möglich, das (optionale) Entlüftungsventil am Ende anzubringen.*
**D6)** *Es wird empfohlen, die Anlage senkrecht zu installieren, um den korrekten Betrieb des schwimmenden Entlüftungsventils (optional) zu erleichtern.*
**D7)** *Mit dem Kit 20M.01 kann die Weiche 22M.01 an die Heizkreisverteiler DN 25 angeschlossen werden. Die Überwurfmuttern an der Weiche und am Heizkreisverteiler aufschrauben.*
**D8)** *Die hydraulischem Weichen mit Flansch werden in der Regel senkrecht eingebaut und mit Hilfe der Teleskopstütze auf den Boden gestellt.*
**E1-E3) Installierung der geflanschten Weichen**
**E1)** *Mit noch liegender Weiche, das Rohr der Halterung an der Weiche bis zum Anschlag festschrauben. Das Rohr in den Sockel schieben, die Höhe der Teleskopstütze einstellen und durch Festziehen der beiden Schrauben (Inbusschlüssel 8 mm) blockieren.*
**E2)** *Die Weiche anheben und neben dem vorgeschalteten Rohr positionieren, an das es angeschlossen werden soll. Den Heizkreisverteiler bis zum Anschlag auf das Rohr schrauben. Die Löcher in den Boden bohren, die Höhe der Teleskopstütze dauerhaft einstellen und die beiden Schrauben (Inbusschlüssel 8 mm) zur Befestigung der Stütze fest ziehen.*
**E3)** *Die Teleskopstütze mit Schrauben und Dübeln (nicht im Lieferumfang enthalten) am Boden befestigen.*

## NOTICE D'INSTALLATION, D'UTILISATION ET D'ENTRETIEN

*Nous vous remercions d'avoir choisi un produit Barberi. De plus amples informations sur le produit sont disponibles sur le site www.barberi.it*

### SÉPARATEURS HYDRAULIQUES

**AVERTISSEMENTS**
*Ce manuel d'instructions doit être lu et compris avant d'installer le produit et de procéder à son entretien.*

*Signification du symbole* ⚠ : **ATTENTION ! LE NON-RESPECT DE CES INSTRUCTIONS POURRAIT PROVOQUER DES DANGERS POUR LES PERSONNES, LES ANIMAUX ET LES OBJETS !**
**SÉCURITÉ**
*Il est obligatoire de suivre les consignes de sécurité décrites dans le document visible à l'aide du code QR.*
**LAISSER CE MANUEL À DISPOSITION DE L'UTILISATEUR.**
**ÉLIMINER SELON LES RÉGLEMENTATIONS EN VIGUEUR.**

**DESCRIPTION**
*Les séparateurs hydrauliques rendent les pompes côté primaire indépendantes des pompes côté secondaire, évitant ainsi les interférences mutuelles.*

**CARACTÉRISTIQUES TECHNIQUES**
**Performances**
*Plage de température de service :*
*- P73.DN25, P73.DN32 : -10–110 °C (hors gel)*
*- 21M.01, 22M.01 : 0–110 °C (hors gel)*
*- F09 : 0–110 °C (hors gel)*
*Pression maximum de service :*
*- P73.DN25, P73.DN32 : 4 bar*
*- 22M.01 : 10 bar*
*- 21M.01, F09 : 6 bar*
*Fluides compatibles : eau pour circuits thermiques, solutions glycolées (max 30 % pour 21M.01 et 22M.01, max 50 % pour P73.DN25, P73.DN32 et F09)*
*Raccords : femelle EN 10226-1/mâle ISO 228-1/brides EN 1092 PN 16*
*Entraxe raccords :*
*- 21M.01 : 125 mm*
*- F09 (primaire/secondaire) : 600/300 mm*

**Matériaux**
*Corps et raccords : acier peint*
*Bouchons : laiton CW617N*
*Joints : EPDM, fibre*
*Coque d'isolation (21M.01, 22M.01, P73.DN25, P73.DN32) :*
*Matériau : EPP*
*Densité : 38 kg/m³*
*Épaisseur : 37 mm*
*Conductivité thermique : 0,039 W/mK*
*Coque d'isolation (F09) : Matériau : PE-X expansé à cellules fermées*
*Épaisseur : 30 mm*
*Densité : 30-80 kg/m³ (interne-externe)*
*Conductivité thermique (ISO 2581) :*
*- 0,036-0,043 W/(m·K) (10 °C) (interne-externe)*
*- 0,041-0,047 W/(m·K) (40 °C) (interne-externe)*
*Coefficient de résistance à la diffusion de vapeur (ISO 12572) : 1300*

**INSTALLATION : INFORMATIONS GÉNÉRALES**
**A) Composants.** *(1) Corps, (2) coque d'isolation, (3) prises de contrôle ou pour accessoires, (4) support télescopique au sol, (5) étriers.*
**B) Montage et démontage :** *exécuter lorsque l'installation est froide et hors pression.*
**C) Accessibilité :** *ne pas gêner l'accès et la visibilité du dispositif pour permettre les opérations de contrôle et d'entretien sur le dispositif ou sur le reste des composants.*

**INSTALLATION**
**D1) Alignement des départs et des retours/Position d'installation.** *Utiliser les raccords supérieurs pour le départ chaudière/départ au circuit secondaire et les raccords inférieurs pour le retour du circuit/retour à la chaudière. Il est possible d'échanger complètement les départs avec les retours, en évitant de croiser les raccords. Les séparateurs hydrauliques DN 25 et DN 32 peuvent également être installés en position horizontale, à condition de respecter l'alignement des départs et des retours.*
**D2)** *Le séparateur 21M.01 peut être vissé directement sur le collecteur DN 25.*
**D3)** *Sur les séparateurs DN 25, il est possible d'installer les étriers équipés de collier aussi bien au milieu des raccords qu'aux extrémités. Fixer les étriers au mur puis insérer le séparateur avec la coque d'isolation. Fermer les étriers à l'aide des vis fournies.*
**D4) Le séparateur ne disposant pas d'étrier doit être installé directement sur le conduit qui supporte son poids.**
**D5)** *Les séparateurs hydrauliques verticaux DN 25 et DN 32 peuvent également être installés en position horizontale. Dans ce cas, il n'est plus possible d'ajouter l'évent (en option) sur l'extrémité.*
**D6)** *Réaliser correctement l'installation en position verticale de sorte à favoriser le fonctionnement d'un évent à flotteur éventuel (en option).*
**D7)** *Le kit 20M.01 permet de relier le séparateur 22M.01 avec les collecteurs DN 25. Visser les écrous sur le séparateur et sur le collecteur.*
**D8)** *Les séparateurs hydrauliques bridés s'installent habituellement en position verticale, en les posant au sol sur le support télescopique.*
**E1-E3) Installation des séparateurs bridés**
**E1)** *Visser à fond le tube du support au sol du séparateur en laissant le séparateur couché. Introduire le tube dans le socle, régler la hauteur du support télescopique et le verrouiller en position en vissant les deux vis (six pans 8 mm).*
**E2)** *Soulever le séparateur et l'installer à proximité du conduit en amont sur lequel il doit être raccordé. Visser à fond le collecteur sur le conduit.*
*Percer les orifices au sol, régler définitivement la hauteur du support télescopique, serrer à fond les deux vis (six pans 8 mm) de blocage du support.*
**E3)** *Fixer au sol le support télescopique à l'aide des vis et des chevilles (non comprises).*

## INSTRUCCIONES DE INSTALACIÓN, USO Y MANTENIMIENTO

*Gracias por escoger un producto Barberi. Para más información sobre este producto, consultar el sitio web www.barberi.it*

### SEPARADORES HIDRÁULICOS

**ADVERTENCIAS**
*Leer atentamente este manual de instrucciones antes de instalar el producto o hacer el mantenimiento.*

*Significado del símbolo* ⚠: **¡ATENCIÓN! EL INCUMPLIMIENTO DE ESTAS INSTRUCCIONES PUEDE CAUSAR SITUACIONES DE PELIGRO PARA PERSONAS, ANIMALES O COSAS.**
**SEGURIDAD**
*Es obligatorio respetar las instrucciones de seguridad descritas en el correspondiente documento, que se puede visualizar mediante código QR.*
**ESTE MANUAL TIENE QUE ESTAR SIEMPRE A DISPOSICIÓN DEL USUARIO.**
**ELIMINAR DE ACUERDO CON LAS NORMAS VIGENTES.**

**DESCRIPCIÓN**
*Los separadores hidráulicos hacen que las bombas del lado primario sean independientes de las del lado secundario y, así, se evitan interferencias entre ellas.*

**CARACTERÍSTICAS TÉCNICAS**
**Prestaciones**
*Campo de temperatura de servicio:*
*- P73.DN25 y P73.DN32: -10–110 °C (excluido hielo)*
*- 21M.01 y 22M.01: 0–110 °C (excluido hielo)*
*- F09: 0–110 °C (excluido hielo)*
*Presión máxima de servicio:*
*- P73.DN25 y P73.DN32: 4 bar*
*- 22M.01: 10 bar*
*- 21M.01 y F09: 6 bar*
*Fluidos compatibles: agua para sistemas de calefacción y soluciones de glicol (máx. 30 % para arts. 21M.01 y 22M.01, máx. 50 % para art. P73.DN25, P73.DN32 y F09)*
*Conexiones: hembra EN 10226-1/macho ISO 228-1/ embridadas EN 1092 PN 16*
*Intereje entre las conexiones:*
*- 21M.01: 125 mm*
*- F09 (principal/secundaria): 600/300 mm*

**Materiales**
*Cuerpo y conexiones: acero pintado*
*Tapones: latón CW617N*
*Juntas: EPDM y fibra*
*Aislamiento (21M.01, 22M.01, P73.DN25 y P73.DN32):*
*Material: EPP*
*Densidad: 38 kg/m³*
*Espesor: 37 mm*
*Conductividad térmica: 0,039 W/mK*
*Aislamiento (F09): Material: PE-X expandido de células cerradas*
*Espesor: 30 mm*
*Densidad: 30-80 kg/m³ (interior-exterior)*
*Conductividad térmica (ISO 2581):*
*- 0,036-0,043 W/(m·K) (10 °C) (interior-exterior)*
*- 0,041-0,047 W/(m·K) (40 °C) (interior-exterior)*
*Coeficiente de resistencia a la difusión de vapor (ISO 12572): 1300*

**INSTALACIÓN: INFORMACIÓN GENERAL**
**A) Componentes.** *(1) Cuerpo, (2) aislamiento, (3) tomas de control o para accesorios, (4) soporte telescópico para suelo, (5) soportes.*
**B) Montaje y desmontaje:** *se deben realizar con el sistema frío y sin presión.*
**C) Accesibilidad:** *no obstaculizar el acceso al dispositivo ni la visibilidad, necesarios para controlar y realizar el mantenimiento del dispositivo en cuestión o del resto de componentes.*

**INSTALACIÓN**
**D1) Alineación de las idas y los retornos/Posición de instalación.** *Utilizar las conexiones superiores para la ida a la caldera/al sistema secundario y las conexiones inferiores para el retorno del sistema/a la caldera. Es posible intercambiar completamente las idas con los retornos, evitando cruzar las conexiones. Los separadores hidráulicos DN 25 y DN 32 también se pueden instalar en posición horizontal, respetando la regla de alinear las idas y los retornos.*
**D2)** *El separador 21M.01 se puede enroscar directamente al colector DN 25.*
**D3)** *En los separadores DN 25 es posible colocar los soportes de collar tanto en medio de las conexiones como en los extremos.*
*Fijar los soportes a la pared y, luego, montar el separador con el aislamiento. Cerrar los soportes con los tornillos suministrados.*
**D4) El separador sin soportes de serie se instala directamente en el tubo que, por lo tanto, lo sostiene.**
**D5)** *Los separadores hidráulicos verticales DN 25 y DN 32 también se pueden instalar en posición horizontal. En este caso, no es posible aplicar el purgador de aire (opcional) en el extremo.*
**D6)** *En caso de instalación en posición vertical, se aconseja asegurarse de que el purgador de aire con flotador (opcional) funcione correctamente.*
**D7)** *El kit 20M.01 permite conectar el separador 22M.01 a los colectores DN 25. Enroscar las tuercas al separador y al colector.*
**D8)** *Normalmente, los separadores hidráulicos embridados se instalan en posición vertical, apoyándolos al suelo mediante un soporte telescópico.*
**E1-E3) Instalación de los separadores embridados**
**E1)** *Con el separador todavía tumbado, enroscar a fondo el tubo del soporte para suelo al separador. Introducir el tubo en el pedestal, regular la altura del soporte telescópico y bloquearlo en dicha posición enroscando los dos tornillos (allen 8 mm).*
**E2)** *Levantar el separador y colocarlo cerca del tubo aguas arriba al que se debe conectar. Enroscar a fondo el colector al tubo.*
*Realizar los orificios en el suelo, regular la altura del soporte telescópico de manera definitiva y apretar a fondo los dos tornillos (allen 8 mm) de bloqueo del soporte.*
**E3)** *Fijar el soporte telescópico al suelo mediante los tacos y tornillos (no suministrados en el paquete).*