

Domestic hot water modules

Catalogue 01/2018

Domestic hot water technology

Valid for the UK





Overview product range Friwa Domestic hot water technology



Design data FriwaMini - DN 15 (½") - up to 28 l/min (as per SPF LK 1)*, cold water inlet temperature = 10 °C			
Set hot water temperature	Withdrawal of hot water with 45 °C at the preset hot water temperature	Transmission performance	Primary flow temperature necessary
45 °C	28 l/min	67 kW	60 °C (LK 1)*
	36 l/min	89 kW	70 °C
60 °C	28 l/min	69 kW	70 °C (LK 2)*

For further information on the product, see page 192/193.



Design data FriwaMidi - DN 20 (¾") - up to 50 l/min (as per SPF LK 1)*, cold water inlet temperature = 10 °C			
Set hot water temperature	Withdrawal of hot water with 45 °C at the preset hot water temperature	Transmission performance	Primary flow temperature necessary
45 °C	50 l/min	121 kW	60 °C (LK 1)*
	64 l/min	155 kW	70 °C
60 °C	53 l/min	129 kW	70 °C (LK 2)*

For further information on the product, see page 194/195.



Design data FriwaMaxi - DN 25 (1") - up to 77 l/min (as per SPF LK 1)*, cold water inlet temperature = 10 °C			
Set hot water temperature	Withdrawal of hot water with 45 °C at the preset hot water temperature	Transmission performance	Primary flow temperature necessary
45 °C	77 l/min	187 kW	60 °C (LK 1)*
	88 l/min	214 kW	70 °C
60 °C	82 l/min	200 kW	70 °C (LK 2)*

For further information on the product, see page 196/197.



Design data FriwaMega - DN 32 (1¼") - up to 123 l/min (as per SPF LK 1)*, cold water inlet temperature = 10 °C			
Set hot water temperature	Withdrawal of hot water with 45 °C at the preset hot water temperature	Transmission performance	Primary flow temperature necessary
45 °C	123 l/min	300 kW	60 °C (LK 1)*
	130 l/min	316 kW	70 °C
60 °C	133 l/min	324 kW	70 °C (LK 2)*

For further information on the product, see page 198/199.

*Indication of performance as per SPF test procedure
LK 1 = performance indicator 1
 at a set hot water temperature of 45 °C
 at a primary flow temperature of 60 °C

LK 2 = performance indicator 2
 at a set hot water temperature of 60 °C
 at a primary flow temperature of 70 °C



Dimensioning product range Friwa Domestic hot water technology

Dimensioning Friwa

The performance of Friwa primarily depends on the temperature in the buffer tank, which delivers the energy to heat up the DHW.

The demand of hot water depends on the flow and on the number of consumers. In larger apartment buildings, a statistic distribution of withdrawals can be detected. The following table shows a basic overview of the application range of Friwa module variants.

Housing unit	70 °C / 60 °C / 10 °C	70 °C / 45 °C / 10 °C***	52 °C / 60 °C / 10 °C***
Single-family house	FriwaMini	FriwaMini	FriwaMini
Two-family house	FriwaMidi	FriwaMidi	FriwaMidi
3	FriwaMidi	FriwaMidi	FriwaMidi
5	FriwaMidi	FriwaMidi	FriwaMidi
10	FriwaMidi	FriwaMidi	FriwaMidi
15	FriwaMaxi	FriwaMidi	FriwaMaxi
20	FriwaMaxi	FriwaMidi	FriwaMaxi
30	2x FriwaMidi	FriwaMaxi	2x FriwaMidi
50	FriwaMega	2x FriwaMidi	FriwaMega
70	2x FriwaMaxi	FriwaMega	2x FriwaMaxi
100	2x FriwaMega	2x FriwaMaxi	2x FriwaMega

***During operation, a DHW temperature below 60 °C does not accord to DVGW 551 (German association for gas and water). The compliance with water quality standards must be observed.

70 °C / 60 °C / 45 °C flow temperature 70 °C / DHW temperature 60 °C / DHW temperature 10 °C
Basis of calculation is the DHW demand of max. 12 l/min and the simultaneity factor according to DIN 4708

Overview Friwa modules and equipment				
Range of application*	up to 28 l/min	up to 50 l/min	up to 77 l/min	up to 123 l/min
Station/type	FriwaMini	FriwaMidi	FriwaMaxi	FriwaMega
Item no.	6404630	6405640	6406662	6407660
Module with circulation**	6404631 (Internal circulation)	6405641 (Internal circulation)	6406663 (Internal circulation)	6407661 + 6407662 (Internal circulation)
Enlarged range of application due to double cascade				
Range of application*	/	up to 100 l/min	up to 154 l/min	up to 246 l/min
Station/type	FriwaMini	FriwaMidi	FriwaMaxi	FriwaMega
Module and pipe set necessary for double cascade				
Basic modules	/	2x 6405640	2x 6406662	2 x 6407660
Pipe set for cascade	/	64042942	64042952	64042962
Optional: Circulation	/	6404136GH7 6404136GH10	6404136GH7 6404136GH10 6404136GH12	6404136GH7 6404136GH10 6404136GH12
Other equipment	see page 193	see page 195	see page 197	see page 199
*Range of application at performance indicator 1 (LK 1, as per SPF test procedure): storage tank 60 °C, hot water = 45 °C, cold water = 10 °C				
**Friwa modules can be subsequently equipped with internal circulation sets - see equipment				
/ = not possible				



FriwaMini



FriwaMidi / Maxi



FriwaMega

Product range Friwa

Advantages of the PAW domestic hot water modules:

- CE conform according to DIN EN 60335
- SVGW / ACS certified
- Insulation according to EnEV directive
- Modules meet requirements of the German Drinking Water Ordinance* (TrinkwV)

Friwa modules heat potable water comfortably and hygienically using the principle of a flow-type heater. Other than in conventional domestic hot water tanks, domestic water as food is not used for energy storage and is not stored as domestic hot water for hours or days. An efficient plate heat exchanger heats it when necessary. The energy for heating the domestic water comes from a buffer storage tank which can be heated by various systems: solar installations as well as solid combustibles, conventional oil or gas boilers or other systems.

The Friwa modules are very well suited for an application in combination with a solar thermal system. The cooling of the heating water in the efficient plate heat exchangers improves the efficiency of the solar circuit, as the cold return reduces the medium temperature of the solar circuit.

In case of large withdrawal differences, the Friwa modules guarantee a constant outlet temperature at the hot water tap. The efficient control optimally sets the current withdrawal capacity of the heating flow rate by means of high-efficiency speed-controlled EC pumps.

The control receives the required information to control the system via a new developed ultrasonic flow rate sensor and extremely rapid temperature sensors, which immediately detect smallest temperature differences.

The circulation pumps used in the Friwa modules meet the energy efficiency guidelines (EuP / ErP READY) of 2015.

The control operates the pumps in different circulation modes, which are adapted to the individual customer system requirements.

Of course, the Friwa modules meet the requirements of the German Drinking Water Ordinance (TrinkwV). The required flame-treated valves can be mounted in the Friwa, thus there is no need for an external withdrawal.

You can set the circulation return temperature individually during commissioning, so that the DVGW 551 (German association for gas and water) requirements of a maximum circulation cooling of 5 K are met in a transparent way and can be logged. Thus, the Friwa modules offer a perfect comfort, optimum hygiene and a forward-looking energy-saving operation.

* German Drinking Water Ordinance as published on 10 March 2016 (BGBl. I page 459) and amended by Article 4 (21) of the Act of 18 July 2016 (BGBl. I page 1666).



Controller FC3.8 for DHW modules

for FriwaMini	up to 28 l/min (as per SPF LK 1*)
for FriwaMidi	up to 50 l/min (as per SPF LK 1*)
for FriwaMidi-Kaskade	up to 100 l/min (as per SPF LK 1*)
for FriwaMaxi	up to 77 l/min (as per SPF LK 1*)
for FriwaMaxi-Kaskade	up to 154 l/min (as per SPF LK 1*)
for FriwaMega	up to 123 l/min (as per SPF LK 1*)
for FriwaMega-Kaskade	up to 246 l/min (as per SPF LK 1*)

The controller FC3.8 sets the hot water temperature of the Friwa module via the speed control of the primary pump. The control functions are adjusted continuously during operation to the system conditions via an auto-adaptive algorithm.

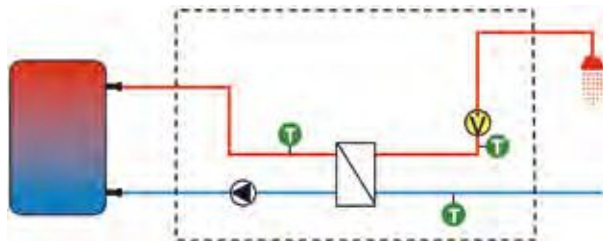
A circulation control and operation of the return distribution valve are additional functions of the controller. Different circulation modes are possible which can be adapted to the system requirements.

The pumps are actuated via a PWM signal. An output for switching the return distribution valve is available. Self-explanatory pictograms indicate the active controller mode.

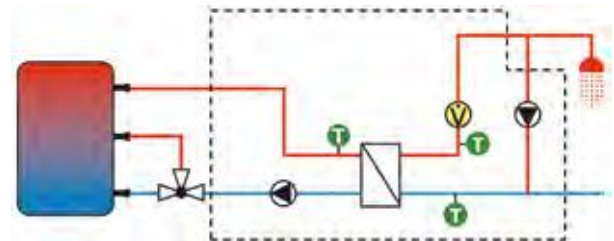
Function overview controller FC3.8	
Display	graphically animated LCD display
Operation	4 (5) push buttons
Relay outputs	2 x 230 V, semiconductor relay 1 x 230 V, switching relay 1 x SELV (max. 24 V), potential-free relay 2 x PWM signal for speed control
Inputs	5 x Pt1000
Flow rate sensors	yes
Heat quantity balancing	yes
Circulation (depending on time / temperature)	yes
Return distribution	yes

***Indication of performance as per SPF test procedure
LK 1 = performance indicator 1
at a set hot water temperature of 45 °C
at a primary flow temperature of 60 °C**

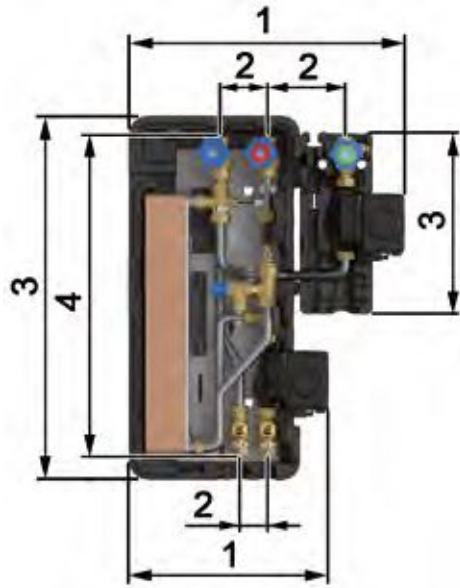
Preset systems:



Friwa basic system



**Friwa basic system
with circulation and return distribution**



without circulation

with circulation

Application range

- DHW preparation using the principle of a flow-type water heater

The CE-conformity of the module according to DIN EN 60335 has been certified. The module is also SVGW / ACS certified.

Range of application

- in solar thermal systems
- in systems with solid fuel boilers, oil or gas boilers
- connection to a buffer tank

*For information on design data, see page 188.

Operating data

Max. pressure	primary: 3 bars, secondary: 10 bars
Max. operating temperature	95 °C
Min. flow rate	2 l/min
Max. flow rate as per SPF LK 1*	28 l/min
Max. transmission performance as per SPF LK 1*	67 kW

Technical data

Equipment

Check valve	primary: 1 x 200 mm wc
Circulation line	optional
Heat exchanger	30 plates, type IC15
Sensors	2 x Pt1000 1 x VFS 2-40 l/min
Controller	FC3.8

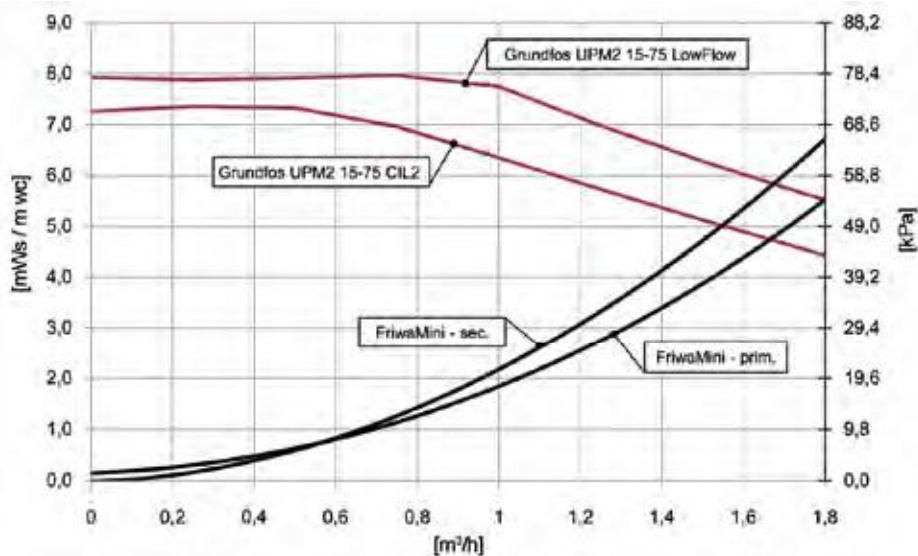
Dimensions

Nominal diameter	DN 15 (½")
Connections	prim.: ¾" internal thread sec.: 1" external thread
Circulation line	1" external thread
(1) Width	385 mm / 485 mm
(2) Centre distance, prim.	49 mm
(2) Centre distance, sec.	84 mm / 137 mm
(3) Height	645 mm / 320 mm
(4) Installation length	563 mm
Depth	248 mm

Materials

Valves and fittings	Brass
Gaskets	AFM34 / EPDM
Insulation	EPP

Differential pressure diagram







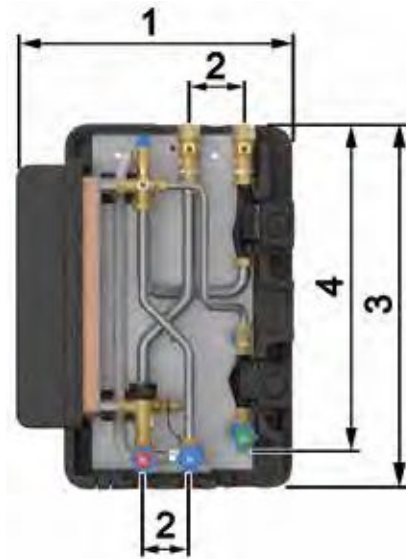
Mounting example FriwaMini without circulation



Mounting example FriwaMini with circulation and return distribution set 1" internal thread (item no. 640425)

FriwaMini - DN 15 (1/2")	Item no.	€ / piece
	FriwaMini without circulation	
	prim.: Grundfos UPM2 15-75 LowFlow	6404630 -
	FriwaMini with circulation	
	prim.: Grundfos UPM2 15-75 LowFlow, sec.: Grundfos UPM2 15-75 CIL2	6404631 -

Accessories		
	Return distribution set 1" internal thread	640425 -
3-way valve with actuator, Kvs value: 11 for FriwaMini		



Application range

- DHW preparation using the principle of a flow-type water heater

The CE-conformity of the module according to DIN EN 60335 has been certified. The module is also SVGW / ACS certified.

Range of application

- in solar thermal systems
- in systems with solid fuel boilers, oil or gas boilers
- connection to a buffer tank
- as double cascade up to 100 l/min (as per SPF LK 1)*

*For information on design data, see page 188.

Operating data

Max. pressure	primary: 3 bars, secondary: 10 bars
Max. operating temperature	95 °C
Min. flow rate	2 l/min
Max. flow rate as per SPF LK 1*	50 l/min
Max. transmission performance as per SPF LK 1*	121 kW

Technical data

Equipment

Check valve	primary: 2 x 200 mm wc
Circulation line	optional
Heat exchanger	40 plates, type IC25
Sensors	primary: 1 x Pt1000 secondary: 2 x Pt1000
Controller	FC3.8

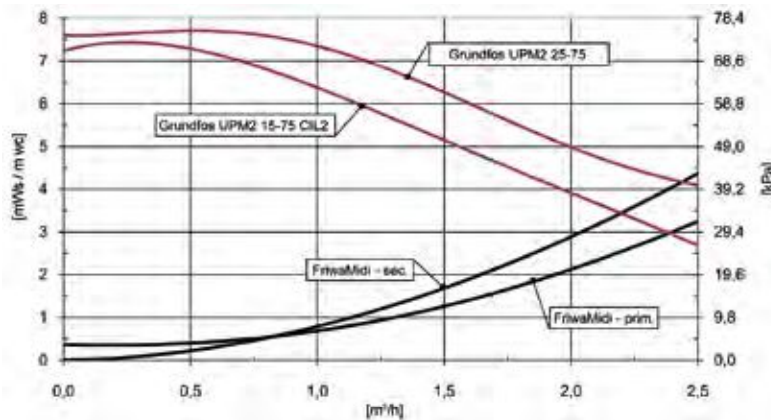
Dimensions

Nominal diameter	DN 20 (¾")
Connections	prim.: ½" external thread sec.: 1" external thread
Circulation line	1" external thread
(1) Width	602 mm
(2) Centre distance, prim.	120 mm
(2) Centre distance, sec.	100 mm
(3) Height	795 mm
(4) Installation length	711 mm / 756 mm
Depth	298 mm

Materials

Valves and fittings	Brass
Gaskets	AFM34 / EPDM
Insulation	EPP

Differential pressure diagram



FriwaMidi - DN 20 (¾")

Item no.

€/ piece



FriwaMidi without circulation

prim.: Grundfos UPM2 25-75

6405640

-

FriwaMidi with circulation

prim.: Grundfos UPM2 25-75, sec.: Grundfos UPM2 15-75 CIL2

6405641

-









FriwaMidi Mounting example, order data

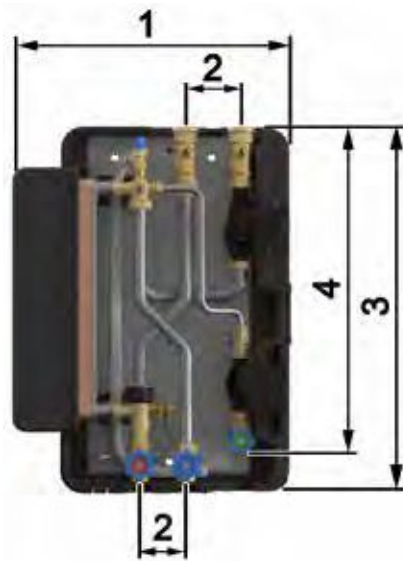


FriwaMidi

Mounting example FriwaMidi with circulation

Cascade with 2 basic modules (item no. 6405640)
and pipe set for cascade (item no. 64042942)

Accessories	Item no.	€ / piece	
	Circulation set for internal retrofitting (FriwaMidi/Maxi)	640412	-
	- with high-efficiency pump Grundfos UPM2 15-75 CIL2 - with piston valve and non-return valve Connection: 1" external thread		
	Return distribution set 1 1/4" int. thread	640423	-
	3-way valve with actuator, setting time 90°: 18 sec., Kvs value: 15 for FriwaMidi		
	Withdrawal valve	640422	-
	Flame-treated valves for sterile withdrawal of water. For the subsequent installation inside the DHW module, on each piston valve of the domestic hot water circuit.		
	Pipe set for FriwaMidi-Kaskade	64042942	-
	Insulated pipe set for cascading of two Friwa modules (item no. 6405640) - with 2 two-way valves for switching - with mounting rail for an easy wall assembly		
	Return distribution set 1 1/2" int. thread	6404242	-
	3-way valve with actuator, setting time for 90°: 35 sec., Kvs value = 25 for FriwaMidi/Maxi-Kaskade, FriwaMega		
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega)	6404136GH7	-
	- with high-efficiency pump Grundfos UPM2 15-75 CIL2 - with piston valves, non-return valve and draining Connection: 1" external thread		
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega)	6404136GH10	-
	- with high-efficiency pump Grundfos UPML 25-105 N - with piston valves, non-return valve and draining Connection: 1 1/2" external thread		



Application range

- DHW preparation using the principle of a flow-type water heater

The CE-conformity of the module according to DIN EN 60335 has been certified. The module is also SVGW / ACS certified.

Range of application

- in solar thermal systems
- in systems with solid fuel boilers, oil or gas boilers
- connection to a buffer tank
- as double cascade up to 154 l/min (as per SPF LK 1)*

*For information on design data, see page 188.

Operating data

Max. pressure	primary: 3 bars, secondary: 10 bars
Max. operating temperature	95 °C
Min. flow rate	2 l/min
Max. flow rate as per SPF LK 1*	77 l/min
Max. transmission performance as per SPF LK 1*	187 kW

Technical data

Equipment

Check valve	primary: 2 x 400 mm wc
Circulation line	optional
Heat exchanger	60 plates, type IC25
Sensors	primary: 1 x Pt1000 secondary: 2 x Pt1000
Controller	FC3.8

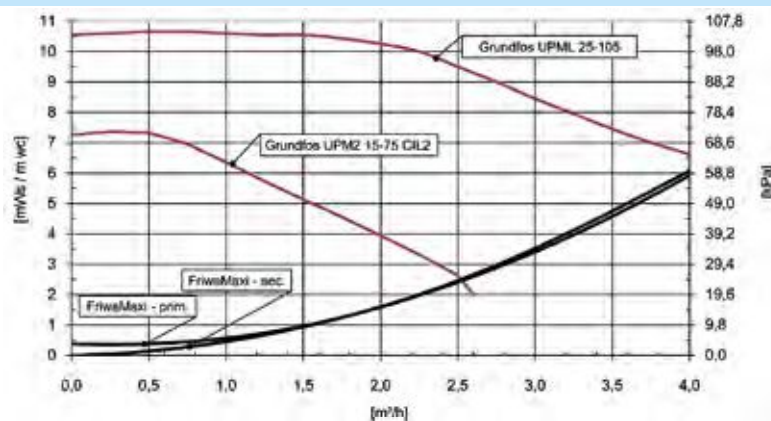
Dimensions

Nominal diameter	DN 25 (1")
Connections	prim.: 2" external thread sec.: 1 1/4" external thread
Circulation line	1" external thread
(1) Width	602 mm
(2) Centre distance, prim.	120 mm
(2) Centre distance, sec.	100 mm
(3) Height	795 mm
(4) Installation length	711 mm / 769 mm
Depth	298 mm

Materials

Valves and fittings	Brass
Gaskets	AFM34 / EPDM
Insulation	EPP

Differential pressure diagram



FriwaMaxi - DN 25 (1")

Item no.

€/ piece



FriwaMaxi without circulation

prim.: Grundfos UPML 25-105

6406662

-

FriwaMaxi with circulation

prim.: Grundfos UPML 25-105, sec.: Grundfos UPM2 15-75 CIL2







6406663

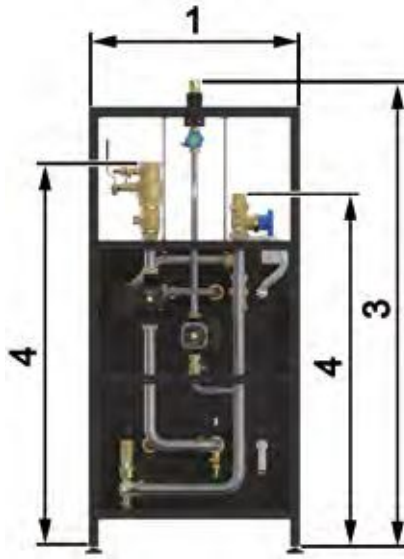
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Mounting example FriwaMaxi with circulation

Cascade with 2 basic modules (item no. 6406662) and pipe set for cascade (item no. 64042922)

Accessories	Item no.	€ / piece
	Circulation set for internal retrofitting (FriwaMidi/Maxi) - with high-efficiency pump Grundfos UPM2 15-75 CIL2 - with piston valve and non-return valve Connection: 1" external thread	640412 -
	Return distribution set 1 1/4" int. thread 3-way valve with actuator, setting time for 90°: 35 sec., Kvs value: 16 for FriwaMaxi	640424 -
	Withdrawal valve Flame-treated valves for sterile withdrawal of water. For the subsequent installation inside the DHW module, on each piston valve of the domestic hot water circuit.	640422 -
	Pipe set for FriwaMaxi-Kaskade Insulated pipe set for cascading of two Friwa modules (item no. 6406662) - with 2 two-way valves for switching - with mounting rail for an easy wall assembly	64042952 -
	Return distribution set 1 1/2" int. thread 3-way valve with actuator, setting time for 90°: 35 sec., Kvs value = 25 for FriwaMidi/Maxi-Kaskade, FriwaMega	6404242 -
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega) - with high-efficiency pump Grundfos UPM2 15-75 CIL2 - with piston valves, non-return valve and draining Connection: 1" external thread	6404136GH7 -
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega) - with high-efficiency pump Grundfos UPML 25-105 N - with piston valves, non-return valve and draining Connection: 1 1/2" external thread	6404136GH10 -
	Circulation set for Friwa-Kaskade (Maxi, Mega) - with high-efficiency pump Grundfos UPMXL GEO 25-125 N - with piston valves, non-return valve and draining Connection: 1 1/2" external thread	6404136GH12 -



Application range

- DHW preparation using the principle of a flow-type water heater

The CE-conformity of the module according to DIN EN 60335 has been certified. The module is also SVGW / ACS certified.

Range of application

- in solar thermal systems
- in systems with solid fuel boilers, oil or gas boilers
- connection to a buffer tank
- as double cascade up to 246 l/min (as per SPF LK 1)*

*For information on design data, see page 188.

Operating data

Max. pressure	primary: 3 bars, secondary: 10 bars
Max. operating temperature	95 °C
Min. flow rate	4 l/min
Max. flow rate as per SPF LK 1*	123 l/min
Max. transmission performance as per SPF LK 1*	300 kW

Technical data

Equipment

Check valve	primary: 2 x 450 mm wc
Circulation line	optional
Heat exchanger	2 x 60 plates, type IC25
Sensors	primary: 1 x Pt1000 secondary: 2 x Pt1000
Controller	FC3.8

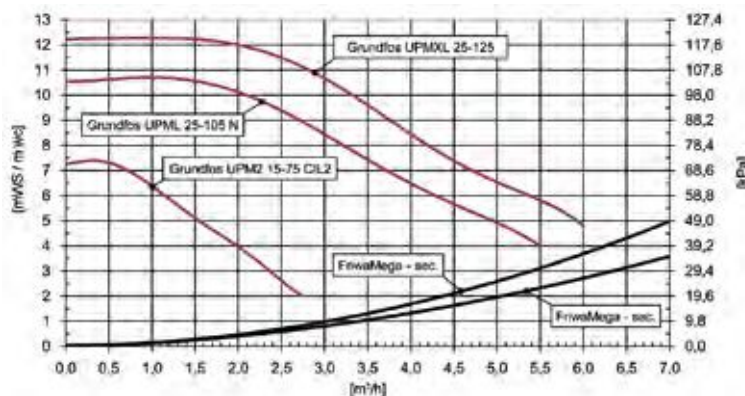
Dimensions

Nominal diameter	DN 32 (1¼")
Connections	prim.: 1½" internal thread sec.: 1½" external thread
Circulation line	1" external thread 1¼" external thread
(1) Width	710 mm
(2) Centre distance, prim.	158 mm
(2) Centre distance, sec.	158 mm
(3) Height	1430 mm
(4) Installation length	1205 mm / 1107 mm
Depth	920 mm

Materials

Valves and fittings	Brass
Gaskets	AFM34 / EPDM
Insulation	EPP

Differential pressure diagram



FriwaMega - DN 32 (1¼")

Item no.

€/ piece



FriwaMega without circulation

prim.: Grundfos UPM XL 25-125	6407660	-
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FriwaMega with circulation

prim.: Grundfos UPM XL 25-125, sec.: Grundfos UPM2 15-75 CIL2	6407662	-
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FriwaMega with circulation

prim.: Grundfos UPM XL 25-125, sec.: Grundfos UPML 25-105 N	6407661	-
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FriwaMega Mounting example, order data



Mounting example FriwaMega with circulation

Cascade with 2 basic modules (item no. 6407660), pipe set for cascade (item no. 64042962) and circulation set (item no. 6404136GHxx)















Accessories	Item no.	€ / piece
	Circulation set for internal retrofitting (FriwaMega) - with high-efficiency pump Grundfos UPM2 15-75 CIL2 - with piston valve and non-return valve Connection: 1" external thread	6404134GH7 -
	Circulation set for internal retrofitting (FriwaMega) - with high-efficiency pump Grundfos UPML 25-105 N - with piston valve and non-return valve Connection: 1¼" external thread	6404135GH10 -
	Withdrawal valve Flame-treated valves for sterile withdrawal of water. For the subsequent installation inside the DHW module, on each piston valve of the domestic hot water circuit.	640422 -
	Return distribution set 1½" int. thread 3-way valve with actuator, setting time for 90°: 35 sec., Kvs value = 25 for FriwaMidi/Maxi-Kaskade, FriwaMega	6404242 -
	Return distribution set 2" int. thread 3-way valve with actuator, setting time for 90°: 35 sec., Kvs value = 40 for FriwaMega-Kaskade	6404244 -
	Pipe set for FriwaMega-Kaskade Insulated pipe set for cascading of two Friwa modules (item no. 6407660) - with 2 two-way valves for switching	64042962 -
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega) - with high-efficiency pump Grundfos UPM2 15-75 CIL2 - with piston valves, non-return valve and draining Connection: 1" external thread	6404136GH7 -
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega) - with high-efficiency pump Grundfos UPML 25-105 N - with piston valves, non-return valve and draining Connection: 1½" external thread	6404136GH10 -
	Circulation set for Friwa-Kaskade (Maxi, Mega) - with high-efficiency pump Grundfos UPMXL GEO 25-125 N - with piston valves, non-return valve and draining Connection: 1½" external thread	6404136GH12 -

Illustration		Item no.	-
	Service water mixing valve ¾" external thread	56311	-
	Service water mixing valve with 22 mm solder sleeve The PAW service water mixing valve is used for setting a constant temperature of the hot water withdrawn from solar or buffer tanks between 30 °C and 70 °C. With this valve, the danger of scalding due to hot water from the storage tank is considerably reduced. A must-have for every correctly designed solar thermal system for service water. Housing: Brass, insensitive to calcification, resistant to dezincification Precision of settings: +/- 2 °C Max. operating temperature: 98 °C Max. operating pressure: PN 10 Control range: 30-70 °C Withdrawal capacity: 39 l/min (DP = 1.5 bars) Connections 56311: Thread connection with ¾" external thread Connections 56321: Solder sleeve d = 22 mm	56321	-
	Domestic hot water safety group ¾" Safety group for hot water storage tank, with shut off and adjustable check valve. For horizontal installation. With seat made of stainless steel. Brass housing. Chromed. Certified in conformity to EN 1487. Opening pressure 7 bars, max. power 10 kW	563907	-
	Discharge tundish for domestic hot water safety group The discharge tundish absorbs water splashes during draining via the pressure relief valve and leads them into the drain line.	5639071	-
	Circulation set for internal retrofitting (FriwaMidi/Maxi) - with high-efficiency pump Grundfos UPM2 15-75 CIL2 - with piston valve and non-return valve Connection: 1" external thread	640412	-
	Circulation set for internal retrofitting (FriwaMega) - with piston valve and non-return valve 6404134GH7: - with high-efficiency pump Grundfos UPM2 15-75 CIL2 Connection: 1" external thread 6404135GH10: - with high-efficiency pump Grundfos UPML 25-105 N Connection: 1¼" external thread	6404134GH7	-
	6404135GH10	6404135GH10	-
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega)	6404136GH7	-
	Circulation set for Friwa-Kaskade (Midi, Maxi, Mega)	6404136GH10	-
	Circulation set for Friwa-Kaskade (Maxi, Mega) - with piston valves, non-return valve and draining 6404136GH7: - with high-efficiency pump Grundfos UPM2 15-75 CIL2 Connection: 1" external thread 6404136GH10: - with high-efficiency pump Grundfos UPML 25-105 N Connection: 1½" external thread 6404136GH12: - with high-efficiency pump Grundfos UPM XL 25-125 N Connection: 1½" external thread	6404136GH12	-

Illustration		Item no.	-
	Return distribution set 1" int. thread 3-way valve with actuator, Kvs value: 11 for FriwaMini	640425	-
	Return distribution set 1¼" int. thread 3-way valve with actuator, setting time 90°: 18 sec., Kvs value: 15 for FriwaMidi	640423	-
	Return distribution set 1¼" int. thread 3-way valve with actuator, setting time for 90°: 35 sec., Kvs value: 16 for FriwaMaxi	640424	-
	Return distribution set 1½" int. thread 3-way valve with actuator, setting time for 90°: 35 sec., Kvs value = 25 for FriwaMidi/Maxi-Kaskade, FriwaMega	6404242	-
	Return distribution set 2" int. thread 3-way valve with actuator, setting time for 90°: 35 sec., Kvs value = 40 for FriwaMega-Kaskade	6404244	-
	Withdrawal valve Flame-treated valves for sterile withdrawal of water. For the subsequent installation inside the DHW module, on each piston valve of the domestic hot water circuit.	640422	-
	Pipe set for FriwaMidi-Kaskade Insulated pipe set for cascading of two Friwa modules (item no. 6405640) - with 2 two-way valves for switching - with mounting rail for an easy wall assembly	64042942	-
	Pipe set for FriwaMaxi-Kaskade Insulated pipe set for cascading of two Friwa modules (item no. 6406662) - with 2 two-way valves for switching - with mounting rail for an easy wall assembly	64042952	-
	Pipe set for FriwaMega-Kaskade Insulated pipe set for cascading of two Friwa modules (item no. 6407660) - with 2 two-way valves for switching	64042962	-