

SOLAR HEAT POTENTIAL & BENEFIT

PRICE LIST
Valid from August 2014

SOLAR SYSTEMS FOR THE ROUGH REALITY...

...this was the concept that – over a quarter century ago in the harsh climate of Tyrol – spawned a solar specialist whose services and innovations had a major impact on the rapid rise of solar systems. Today, the first solar systems are still in use, supplying heat and energy under the most demanding conditions. Our philosophy for success: efficiency, toughness and durability is the core promise of the brand. Now, TiSUN® is a leading manufacturer in Central Europe – the global centre of solar technology.

With TiSUN®, developed and manufactured in the Tyrolean mountains, you are choosing quality that can withstand the tough demands of real life – for generations to come.

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Solar Keymark



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The prices shown are non-binding recommended prices.

PFM 2,01 / 2,55 / 3,30 MODULE COLLECTOR PRODUCT OVERVIEW



CMT-Welded collector frame



NEW



The Plug & Flow module collector (= PFM): The next generation

Flexible to install and use, the PFM is the ultimate benchmark, thanks to the new TiSUN collector mounting concept, based on the proven frame construction, and its aesthetic appeal. The collector is distinguished by its state-of-the-art manufacturing technology and optimised product features (e.g. reduced design height, waterproof frame construction – thanks to CMT welding and panel bonding). The new patented connection technology and availability in 6 formats make the PFM ideal for nearly all application scenarios. By means of a new hydraulic connection system, up to 10 collectors can (depending on the format) be interconnected within a field. The PFM is suitable on roof, in roof and free standing.

Product description

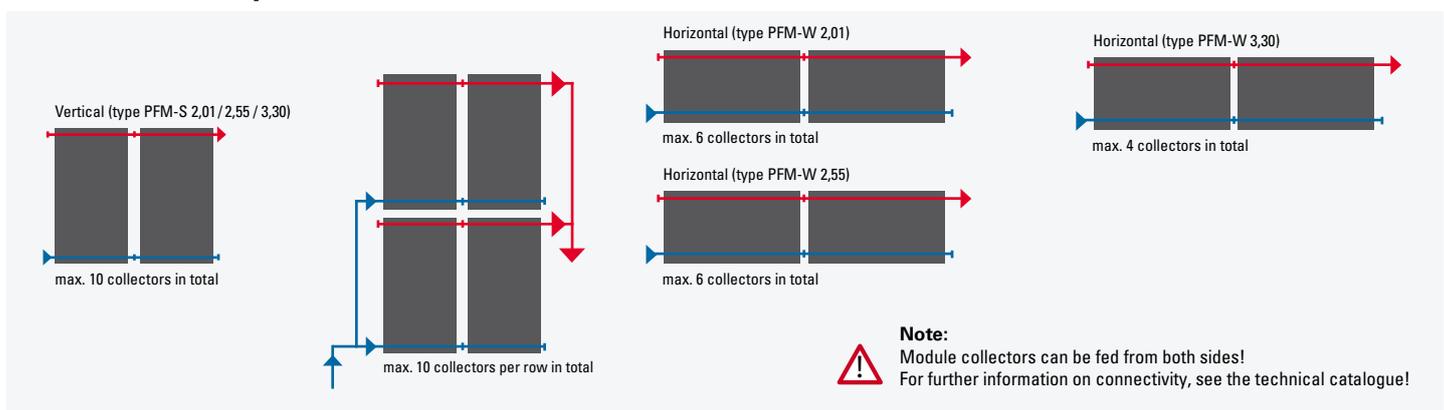
Design	Modular flat plate collector
Installation/mounting	Collector tilt angles from 15° to 70°
Snow load pressure	max. 300 kg/m ²
Housing	Natural-finish aluminium frame, powder-coated cover strip (RAL 7016), aluminium back wall (62 mm design height)
Absorber	Laser-welded full-area absorber with high-selectivity coating and meandering flow
Connections	4/copper pipes 22 × 0.8 mm with PFM widened pipe end
Cover	Prismatic solar safety glass, 4 mm (high degree of light transmission)

Note: Use of panels for facade construction with 90° possible, other inclinations and facade integration on request!

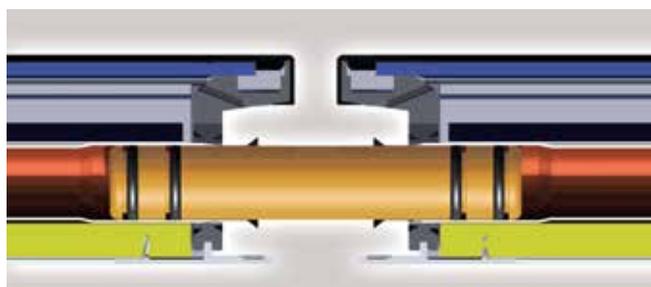
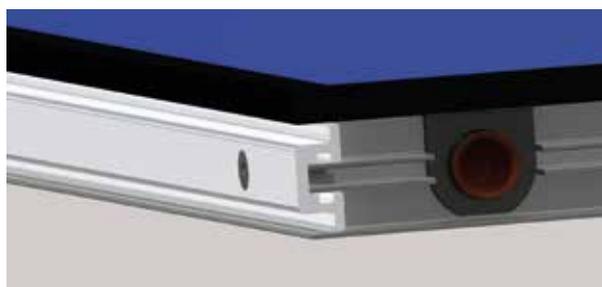
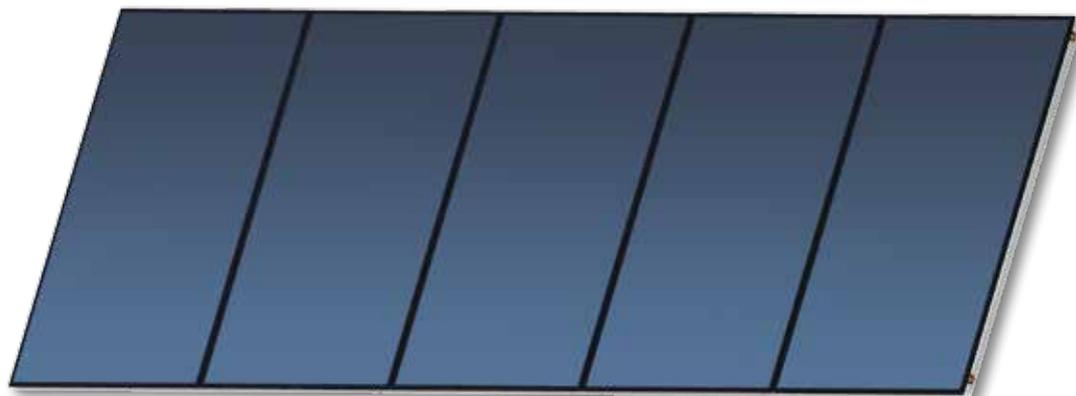
Module Collector PFM 2,01 / 2,55 / 3,30

Type	PFM-S 2,01 (vertical)	PFM-W 2,01 (horizontal)	PFM-S 2,55 (vertical)	PFM-W 2,55 (horizontal)	PFM-S 3,30 (vertical)	PFM-W 3,30 (horizontal)
Item no.	1430683	1430684	1430685	1430686	1430687	1430688
Gross area	2.01 m ²	2.01 m ²	2.55 m ²	2.55 m ²	3.31 m ²	3.31 m ²
Aperture area	1.89 m ²	1.89 m ²	2.41 m ²	2.41 m ²	3.14 m ²	3.14 m ²
External dimensions (H × W × D)	1.70 × 1.18 × 0.062 m	1.18 × 1.70 × 0.062 m	2.16 × 1.18 × 0.062 m	1.18 × 2.16 × 0.062 m	2.80 × 1.18 × 0.062 m	1.18 × 2.80 × 0.062 m
Weight	33 kg	33 kg	42 kg	42 kg	53 kg	53 kg
Price	620.–	640.–	705.–	735.–	890.–	930.–

Connection examples



PFM-G LARGE COLLECTOR PRODUCT OVERVIEW



Large collector for in-roof, on-roof and freestanding installation

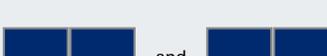
The PFM-G large collector is an ideal alternative to large scaled collector systems and makes it possible to reduce on-site installation times. Assembled ready-to-connect from the respective PFM format, the PFM-G can be quickly mounted using a mobile crane – regardless of the weather. The individual modules are connected by means of the new TiSUN frame system, with dimensionally stable profiles. The PFM-G is available in 17 different sizes and suitable for any type of roofing. The PFM-G is suitable on roof, in roof and free standing.

Product description

Design	Large-area flat-plate collector
Installation/mounting	Collector tilt angles from 15° to 70°
Snow load pressure	max. 300 kg/m ²
Housing	Natural-finish aluminium frame, powder-coated cover strip (RAL 7016), aluminium back wall (62 mm design height)
Absorber	Laser-welded full-area absorber with high-selectivity coating and meandering flow
Connections	4/copper pipes 22 × 0.8 mm with PFM widened pipe end
Cover	Prismatic solar safety glass, 4 mm (high degree of light transmission)

Note: Use of panels for facade construction with 90° possible, other inclinations and facade integration on request!

PFM-G - Sizes Overview

Module collectors	Large collectors	Module collectors	Large collectors
PFM-S 2,01	PFM-G-S 2,01/2 to 2,01/5	PFM-W 2,01	PFM-G-W 2,01/2 and 2,01/3
 1702 x 1182 mm	 2.37 m to 5.95 m	 1182 x 1702 mm	 3.41 m and 5.12 m
PFM-S 2,55	PFM-G-S 2,55/2 to 2,55/5	PFM-W 2,55	PFM-G-W 2,55/2 and 2,55/3
 2162 x 1182 mm	 2.37 m to 5.95 m	 1182 x 2162 mm	 4.33 m and 6.50 m
PFM-S 3,30	PFM-G-S 3,30/2 to 3,30/5	PFM-W 3,30	PFM-G-W 3,30/2
 2802 x 1182 mm	 2.37 m to 5.95 m	 1182 x 2802 mm	 5.61 m

Large Collector PFM-G-S 2,01

Type	Item no.	Gross area	Aperture area	External dimensions (H x W x D)	Weight	Price
PFM-G-S 2,01/2	1430640	4.04 m ²	3.78 m ²	1.70 x 2.37 x 0.062 m	71 kg	1,421.-
PFM-G-S 2,01/3	1430641	6.07 m ²	5.67 m ²	1.70 x 3.56 x 0.062 m	107 kg	2,041.-
PFM-G-S 2,01/4	1430642	8.10 m ²	7.56 m ²	1.70 x 4.75 x 0.062 m	142 kg	2,661.-
PFM-G-S 2,01/5	1430643	10.13 m ²	9.45 m ²	1.70 x 5.95 x 0.062 m	178 kg	3,281.-

Large Collector PFM-G-S 2,55

Type	Item no.	Gross area	Aperture area	External dimensions (H x W x D)	Weight	Price
PFM-G-S 2,55/2	1430645	5.13 m ²	4.82 m ²	2.16 x 2.37 x 0.062 m	89 kg	1,565.-
PFM-G-S 2,55/3	1430646	7.71 m ²	7.23 m ²	2.16 x 3.56 x 0.062 m	134 kg	2,257.-
PFM-G-S 2,55/4	1430647	10.29 m ²	9.64 m ²	2.16 x 4.75 x 0.062 m	179 kg	2,949.-
PFM-G-S 2,55/5	1430648	12.86 m ²	12.05 m ²	2.16 x 5.95 x 0.062 m	224 kg	3,642.-

Large Collector PFM-G-S 3,30

Type	Item no.	Gross area	Aperture area	External dimensions (H x W x D)	Weight	Price
PFM-G-S 3,30/2	1430650	6.65 m ²	6.28 m ²	2.80 x 2.37 x 0.062 m	111 kg	1,935.-
PFM-G-S 3,30/3	1430651	9.99 m ²	9.42 m ²	2.80 x 3.56 x 0.062 m	167 kg	2,845.-
PFM-G-S 3,30/4	1430652	13.33 m ²	12.56 m ²	2.80 x 4.75 x 0.062 m	223 kg	3,735.-
PFM-G-S 3,30/5	1430653	16.67 m ²	15.7 m ²	2.80 x 5.95 x 0.062 m	279 kg	4,670.-

Large Collector PFM-G-W 2,01

Type	Item no.	Gross area	Aperture area	External dimensions (H x W x D)	Weight	Price
PFM-G-W 2,01/2	1430676	4.04 m ²	3.78 m ²	1.18 x 3.41 x 0.062 m	73 kg	1,465.-
PFM-G-W 2,01/3	1430677	6.07 m ²	5.67 m ²	1.18 x 5.12 x 0.062 m	110 kg	2,107.-

Large Collector PFM-G-W 2,55

Type	Item no.	Gross area	Aperture area	External dimensions (H x W x D)	Weight	Price
PFM-G-W 2,55/2	1430678	5.13 m ²	4.82 m ²	1.18 x 4.33 x 0.062 m	93 kg	1,661.-
PFM-G-W 2,55/3	1430679	7.71 m ²	7.23 m ²	1.18 x 6.50 x 0.062 m	140 kg	2,401.-

Large Collector PFM-G-W 3,30

Type	Item no.	Gross area	Aperture area	External dimensions (H x W x D)	Weight	Price
PFM-G-W 3,30/2	1430680	6.65 m ²	6.28 m ²	1,18 x 5.61 x 0.062 m	119 kg	2,085.-

PFM-G-SM A/B Customised Collector

The customised PFM-G-SM offers the possibility to design corner angles and frame measures on request.

Custom size A (rectangular)

Large collector rectangular with customised width, height and connection.



Type	Item No.	Collector type	Dimensions	Price
PFM-G-SMA	1430798	PFM-G	per m ² gross area	510.-

Custom size B (not rectangular)

Large collector non-rectangular with custom width, height and connection. Different angles are available.



Type	Item No.	Collector type	Dimensions	Price
PFM-G-SMB	1430799	PFM-G	per m ² gross area	655.-

With special sizes please note:

The precise collector dimensions must be provided (max. 2.8 x 5.95 m). Measurement on site is charged on a time and material basis. Bolting and installation of the customised collectors on request.

All prices in Euros (excluding VAT)

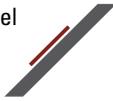
MODULE COLLECTOR

COLLECTOR MOUNTING MATERIAL – PARALLEL ON THE ROOF

For parallel installation on different types of roof using individually fitted roof mounts. The roof mounting material and the substructure appropriate for the collector have to be selected separately! The hydraulic connectors between the collectors of a field are included in the respective expansion set.
Caution: At elevated load additional frames have to be ordered. (Page 16)



On-roof parallel

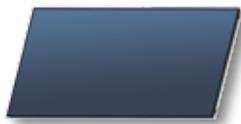


Collector frame

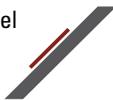
Frame	2 x PFM-S			4 x PFM-S			6 x PFM-S		
	2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30
No. of collectors									
Item no.	1420849		1420869	1420851		1420871	1420853		1420873
Price	144.-		201.-	298.-		415.-	452.-		629.-

Minimum number of pieces of roof mounting material required (for specified collector area load)

		2 x PFM-S			4 x PFM-S			6 x PFM-S			
		2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30	
Duo hanger bolt	Standard load up to 1.5 kN/m ² (150 kg/m ²)	6	6	9	10	10	15	14	14	21	
Rafter anchor for roof tiles		Increased load up to 3.0 kN/m ² (300 kg/m ²) Rafters distance 750 mm	8	8	12	14	14	21	20	20	30
Solar bracket for side locks plates			Standard load up to 0.75 kN/m ² (75 kg/m ²)	6	6	9	10	10	15	14	14
Bitumen flange plate	Increased load up to 1.5 kN/m ² (150 kg/m ²)			8	8	12	14	14	21	20	20
Corrugated cement asbestos calotte		Standard load up to 0.75 kN/m ² (75 kg/m ²)		6	6	9	10	10	15	14	14
Profiled bracket			Increased load up to 1.5 kN/m ² (150 kg/m ²)	8	8	12	14	14	21	20	20
Joint clamp for tin joint roof	Standard load up to 0.75 kN/m ² (75 kg/m ²)			6	6	9	10	10	15	14	14
Hanger bolt (plain)		Increased load up to 1.5 kN/m ² (150 kg/m ²)		8	8	12	14	14	21	20	20
Roof hook for roof tiles			Standard load up to 0.75 kN/m ² (75 kg/m ²)	6	6	9	10	10	15	14	14
Plain tile hook	Increased load up to 1.5 kN/m ² (150 kg/m ²)			8	8	12	14	14	21	20	20



On-roof parallel



Frame	2 x PFM-W			3 x PFM-W			4 x PFM-W		
	2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30
No. of collectors									
Item no.	1420879	1420886	1420891	1420880	1420887	1420892	1420881	1420888	1420893
Price	176.-	206.-	245.-	269.-	314.-	372.-	362.-	422.-	499.-

Minimum number of pieces of roof mounting material required (for specified collector area load)

		2 x PFM-W			3 x PFM-W			4 x PFM-W			
		2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30	
Duo hanger bolt	Standard load up to 1.5 kN/m ² (150 kg/m ²)	8	8	8	12	12	12	16	16	16	
Rafter anchor for roof tiles		Increased load up to 3.0 kN/m ² (300 kg/m ²)	8	8	12	12	12	18	16	16	24
Solar bracket for side locks plates			Standard load up to 0.75 kN/m ² (75 kg/m ²)	8	8	8	12	12	12	16	16
Bitumen flange plate	Increased load up to 1.5 kN/m ² (150 kg/m ²)			8	8	12	12	12	18	16	16
Corrugated cement asbestos calotte		Standard load up to 0.75 kN/m ² (75 kg/m ²)		8	8	8	12	12	12	16	16
Profiled bracket			Increased load up to 1.5 kN/m ² (150 kg/m ²)	8	8	12	12	12	18	16	16
Joint clamp for tin joint roof	Standard load up to 0.75 kN/m ² (75 kg/m ²)			8	8	8	12	12	12	16	16
Hanger bolt (plain)		Increased load up to 1.5 kN/m ² (150 kg/m ²)		8	8	12	12	12	18	16	16
Roof hook for roof tiles			Standard load up to 0.75 kN/m ² (75 kg/m ²)	8	8	8	12	12	12	16	16
Plain tile hook	Increased load up to 1.5 kN/m ² (150 kg/m ²)			8	8	12	12	12	18	16	16

8 x PFM-S			10 x PFM-S			For the 1st Collector PFM-W basic set			For each additional collector PFM-W expansion set		
2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30
1420855		1420875	1420857		1420877	1430720		1430722	1430721		1430723
606.-		843.-	760.-		1,057.-	67.-		94.-	77.-		107.-

18	18	27	22	22	33	4	4	6	2	2	3
26	26	39	32	32	48	4	4	6	-	-	-
18	18	27	22	22	33	4	4	6	2	2	3
26	26	39	32	32	48	4	4	6	-	-	-

5 x PFM-W		6 x PFM-W		For the 1st Collector PFM-W basic set			For each additional collector PFM-W expansion set		
2,01	2,55	2,01	2,55	2,01	2,55	3,30	2,01	2,55	3,30
1420882	1420889	1420883	1421121	1430724	1430726	1430728	1430725	1430727	1430729
455.-	530.-	548.-	638.-	83.-	98.-	118.-	93.-	108.-	127.-

20	20	24	24	4	4	4	4	4	4
20	20	24	24	4	4	4	4	4	4
20	20	24	24	4	4	4	4	4	4
20	20	24	24	4	4	4	4	4	4

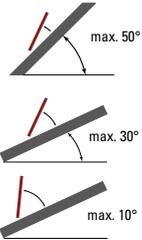
MODULE COLLECTOR

COLLECTOR MOUNTING MATERIAL – FOR ON-ROOF RAISED AND FREESTANDING INSTALLATION

For on-roof raised installation on different types of roofs using individually fitted roof mounts as well as freestanding installation. The roof mounting material and the frame appropriate for the collector have to be selected separately! The hydraulic connectors between the collectors of a field are included in the respective expansion set. **Caution:** The hydraulic connection set is not included in the scope of delivery or, respectively, must be selected separately according to the overview on page 16.



Collector frame

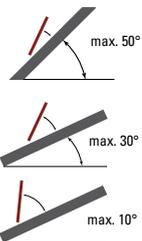


Frame	2 x PFM-S			4 x PFM-S			6 x PFM-S		
	2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30
No. of collectors	■ ■			■ ■ ■ ■			■ ■ ■ ■ ■ ■		
On-roof 20° at max. roof pitch of 50°	Item no. 1420895		1420915	1420897		1420917	1420899		1420919
	Price 423.-		684.-	763.-		1,220.-	1,103.-		1,756.-
On-roof 40° at max. roof pitch of 30°	Item no. 1420941		1420961	1420943		1420963	1420945		1420965
On-roof 60° at max. roof pitch of 10°	Price 474.-		756.-	848.-		1,340.-	1,222.-		1,924.-

Minimum number of pieces of roof mounting material required (for specified collector area load)

Duo hanger bolt	Standard load up to 1.5 kN/m ² (150 kg/m ²)	6	6	-	10	10	-	14	14	-
Rafter anchor for roof tiles										
Solar bracket for side locks plates										
Bitumen flange plate	Increased load up to 3.0 kN/m ² (300 kg/m ²)	8	8	-	14	14	-	20	20	-
Corrugated cement asbestos calotte	Rafterdistance 750 mm									
Profiled bracket	Additional frames required	1	1	-	2	2	-	3	3	-
Anchor bolt										
Hanger bolt (plain)	Standard load up to 0.75 kN/m ² (75 kg/m ²)	6	6	-	10	10	-	14	14	-
	Increased load up to 1.5 kN/m ² (150 kg/m ²)	8	8	-	16	16	-	24	24	-
Joint clamp for tin joint roof + Guy cable set	Snow load up to 3.0 kN/m ² (300 kg/m ²)	10	10	-	16	16	-	24	24	-
	Wind impact pressure up to 0.75 kN/m ² (75 kg/m ²)	2	2	-	3	3	-	3	3	-
	Additional frames required	2	2	-	3	3	-	5	5	-

Caution: At elevated load additional frames have to be ordered. (Page 16)



Frame	2 x PFM-W			3 x PFM-W			4 x PFM-W			
	2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30	
No. of collectors	■ ■			■ ■ ■			■ ■ ■ ■			
On-roof 20° at max. roof pitch of 50°	Item no. 1420925		1420932	1420937	1420926		1420933	1420938	1420927	
	Price 532.-		562.-	601.-	803.-		848.-	906.-	1,074.-	
On-roof 40° at max. roof pitch of 30°	Item no. 1420972		1420979	1420984	1420973		1420980	1420985	1420974	
On-roof 60° at max. roof pitch of 10°	Price 544.-		574.-	613.-	821.-		866.-	924.-	1,098.-	

Minimum number of pieces of roof mounting material required (for specified collector area load)

Duo hanger bolt	Standard load up to 1.5 kN/m ² (150 kg/m ²)	8	8	8	12	12	12	16	16	16
Rafter anchor for roof tiles										
Solar bracket for side locks plates										
Bitumen flange plate	Increased load up to 3.0 kN/m ² (300 kg/m ²)	8	8	8	12	12	12	16	16	16
Corrugated cement asbestos calotte	Sparrenabstand 750mm									
Profiled bracket	Additional frames required	-	-	-	-	-	-	-	-	-
Anchor bolt										
Hanger bolt (plain)	Standard load up to 0.75 kN/m ² (75 kg/m ²)	8	8	8	12	12	12	16	16	16
	Increased load up to 1.5 kN/m ² (150 kg/m ²)	8	8	8	12	12	12	16	16	16
Joint clamp for tin joint roof + Guy cable set	Snow load up to 3.0 kN/m ² (300 kg/m ²)	10	10	12	14	14	16	18	18	20
	Wind impact pressure up to 0.75 kN/m ² (75 kg/m ²)	2	2	2	2	2	2	3	3	3
	Additional frames required	1	1	2	1	1	2	1	1	2

Caution: The hydraulic connection set is not included in the scope of delivery or, respectively, must be selected separately according to the overview on page 16. At elevated load additional frames have to be ordered. (Page 16)

8 x PFM-S			10 x PFM-S			For the 1st Collector PFM-S basic set			For each additional collector PFM-S expansion set		
2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30	2,01	2,55	3,30
1420901		1420921	1420903		1420923	1420894		1420914	1421136		1421140
1,443.-		2,292.-	1,783.-		2,828.-	253.-		416.-	170.-		268.-
1420947		1420967	1420949		1420970	1420940		1420960	1421137		1421141
1,596.-		2,508.-	1,907.-		3,092.-	287.-		464.-	187.-		292.-

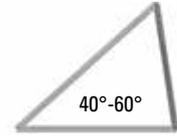
18	18	-	22	22	-	4	4	-	2	2	-
26	26	-	32	32	-	4	4	-	-	-	-
4	4	-	5	5	-	-	-	-	-	-	-
18	18	-	22	22	-	4	4	-	2	2	-
32	32	-	40	40	-	4	4	-	4	4	-
34	34	-	40	40	-	6	6	-	-	-	-
4	4	-	5	5	-	2	2	-	1	1	-
8	8	-	9	9	-	2	2	-	-	-	-

5 x PFM-W		6 x PFM-W		For the 1st Collector PFM-W basic set			For each additional collector PFM-W expansion set		
2,01	2,55	2,01	2,55	2,01	2,55	3,30	2,01	2,55	3,30
1420928	1420935	1420929	1421122	1420924	1420931	1420936	1421142	1421144	1421146
1,345.-	1,420.-	1,616.-	1,706.-	261.-	276.-	296.-	271.-	286.-	305.-
1420975	1420982	1420976	1421123	1420971	1420978	1420983	1421143	1421145	1421147
1,375.-	1,450.-	1,652.-	1,857.-	267.-	282.-	302.-	277.-	292.-	311.-

20	20	24	24	4	4	4	4	4	4
20	20	24	24	4	4	4	4	4	4
-	-	-	-	-	-	-	-	-	-
20	20	24	24	4	4	4	4	4	4
20	20	24	24	4	4	4	4	4	4
22	22	26	26	6	6	6	4	4	4
4	4	4	4	2	2	2	1	1	1
1	1	1	1	-	-	-	-	-	-

LARGE COLLECTOR

Frame for PFM / PFM-G



Type	Item no.	Price	Item no.	Price
PFM-S 2,01 / 2,55 frames	1430714	93.-	1430715	110.-
PFM-S 3,30 frame	1430716	161.-	1430717	185.-
PFM-W 2,01 / 2,55 / 3,30 frames	1430718	89.-	1430719	92.-

COLLECTOR MOUNTING MATERIAL – PARALLEL ON THE ROOF

For parallel installation on different types of roof using individually fitted roof mounts. The roof mounting material and the substructure appropriate for the collector have to be selected separately! The hydraulic connectors between the collectors of a PFM-G are included.

Caution: At elevated load additional frame have to be ordered. (Page 16)



On-roof parallel

		Collector substructure (without roof mounting material)							
Frame		PFM-G-S 2,01/2	PFM-G-S 2,01/3	PFM-G-S 2,01/4	PFM-G-S 2,01/5	PFM-G-S 2,55/2	PFM-G-S 2,55/3	PFM-G-S 2,55/4	
Item no.		1420992	1420993	1420994	1420995	1420992	1420993	1420994	
Price		85.-	117.-	164.-	186.-	85.-	117.-	164.-	

Minimum number of pieces of roof mounting material required (for specified collector area load)

Duo hanger bolts	Standard load up to 1.5 kN/m ² (150 kg/m ²)	6	8	10	12	6	8	10
Rafter anchor for roof tiles								
Solar bracket for side locks plates	Increased load up to 3.0 kN/m ² (300 kg/m ²) Rafters distance 750 mm	8	10	14	16	8	10	14
Bitumen flange plate								
Corrugated cement asbestos calotte								
Profiled bracket	Standard load up to 1.5 kN/m ² (150 kg/m ²)	10	12	16	20	10	12	16
Joint clamp for tin joint roof								
Plain tile hook	Standard load up to 0.75 kN/m ² (75 kg/m ²)	6	8	10	12	6	8	10
	Increased load up to 1.5 kN/m ² (150 kg/m ²) Rafters distance 750 mm	8	12	16	20	8	12	16

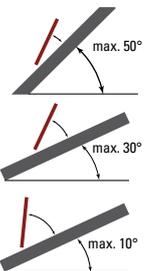


Caution: The hydraulic connection set is not included in the scope of delivery or, respectively, must be selected separately according to the overview on page 16. At elevated load additional frames have to be ordered. (Page 16)

COLLECTOR MOUNTING MATERIAL – ON-ROOF RAISED AND FREESTANDING INSTALLATION

For on-roof raised installation on different types of roofs individually fitted roof mounts as well as the freestanding installation. The roof mounting material and the substructure appropriate for the collector have to be selected separately! The hydraulic connectors between the collectors of a PFM-G are included.

Caution: At elevated load additional frames have to be ordered. (Page 16)



		Collector frame (without roof mounting material for on-roof raised and freestanding installation)					
Frame		PFM-G-S 2,01/2	PFM-G-S 2,01/3	PFM-G-S 2,01/4	PFM-G-S 2,01/5	PFM-G-S 2,55/2	PFM-G-S 2,55/3
Item no.	On-roof 20° at max. roof pitch of 50°	1421005	1421006	1421007	1421008	1421005	1421006
Price		317.-	502.-	549.-	655.-	317.-	502.-
Item no.	On-roof 40° at max. roof pitch of 30°	1421026	1421027	1421028	1421029	1421026	1421027
Price	On-roof 60° at max. roof pitch of 10°	358.-	481.-	619.-	740.-	358.-	481.-

Minimum number of pieces of roof mounting material required for on-roof raised and freestanding installation

Duo hanger bolts	Standard load up to 1.5 kN/m ² (150 kg/m ²)	6	8	10	12	6	8
Rafter anchor for roof tiles							
Solar bracket for side locks plates	Increased load up to 3.0 kN/m ² (300 kg/m ²) Rafters distance 750 mm	8	10	14	16	8	10
Bitumen flange plate, Corrugated cement asbestos calotte	Additional frames required	1	1	2	2	1	1
Profiled bracket							
Anchor bolt for concrete	Standard load up to 1.5 kN/m ² (150 kg/m ²)	6	8	10	12	6	8
	Snow load up to 3.0 kN/m ² (300 kg/m ²)	10	12	16	20	10	12
Joint clamp for tin joint roof + Guy cable set	Wind impact pressure up to 0.75 kN/m ² (75 kg/m ²)	2	2	3	4	2	2
	Additional frames required	2	2	3	4	2	2



Caution: The hydraulic connection set is not included in the scope of delivery or, respectively, must be selected separately according to the overview on page 16.



Collector substructure (without roof mounting material)

PFM-G-S 2,55/5	PFM-G-S 3,30/2	PFM-G-S 3,30/3	PFM-G-S 3,30/4	PFM-G-S 3,30/5	PFM-G-W 2,01/2	PFM-G-W 2,01/3	PFM-G-W 2,55/2	PFM-G-W 2,55/3	PFM-G-W 3,30/2
1420995	1420996	1420997	1420998	1420999	1421000	1421001	1421002	1421003	1421004
186.-	128.-	175.-	246.-	289.-	113.-	163.-	134.-	229.-	166.-
12	9	12	15	18	8	12	8	12	8
16	12	15	21	24	8	12	8	12	12
20	15	18	24	30	10	16	14	20	20
12	8	10	12	14	8	12	8	12	8
20	12	18	24	30	8	12	8	12	10

 Collector frame
 (without roof mounting material for on-roof raised and freestanding installation)

PFM-G-S 2,55/4	PFM-G-S 2,55/5	PFM-G-S 3,30/2	PFM-G-S 3,30/3	PFM-G-S 3,30/4	PFM-G-S 3,30/5	PFM-G-W 2,01/2	PFM-G-W 2,01/3	PFM-G-W 2,55/2	PFM-G-W 2,55/3	PFM-G-W 3,30/2
1421007	1421008	1421013	1421014	1421015	1421016	1421017	1421018	1421019	1421020	1421021
549.-	655.-	527.-	707.-	911.-	1,088.-	408.-	604.-	428.-	669.-	461.-
1421028	1421029	1421030	1421031	1421032	1421033	1421034	1421035	1421036	1421037	1421038
619.-	740.-	585.-	785.-	1,008.-	1,203.-	416.-	617.-	437.-	683.-	469.-

(for specified collector area loading)

10	12	-	-	-	-	8	12	8	12	8
14	16	-	-	-	-	8	12	8	12	12
2	2	-	-	-	-	-	-	-	-	2
10	12	9	12	15	18	8	12	8	12	8
16	20	-	-	-	-	10	16	14	20	20
3	4	-	-	-	-	8	12	8	12	8
3	4	-	-	-	-	1	2	3	4	6

MODULE AND LARGE COLLECTOR

ROOF MOUNTING MATERIAL FOR PFM AND PFM-G

	Mounting type	Item no.	Price		Mounting type	Item no.	Price
	Universal mounting hanger bolt	1430033	16.-		Bitumen flange plate for bitumen roof, height 240 mm	1420643	63.-
	Universal mounting Duo hanger bolt	1430043	33.-		Profiled console for profiled or corrugated sheet metal ¹⁾	1430039	57.-
	Rafter anchor for roof tiles, height-adjustable, height 40 - 60 mm	1410606	38.-		Corrugated cement asbestos calotte for 5 corrugations (5 corrugations/m) ²⁾	1420074	23.-
	Roof hook for roof tiles	1430044	22.-		Corrugated cement asbestos calotte for 8 corrugations (8 corrugations/m) ²⁾	1420075	26.-
	Plain tile hook for plain tiled roof	1420072	34.-		Anchor bolt for concrete, galvanised, without height compensation	1410001	1.60
	Joint clamp for tin joint roof	1430041	22.-		Anchor bolt for concrete, galvanised, with height compensation	1430042	8.10
	Universal guy cable set for tin joint roofs	1420688	208.-		Anchor bolt for concrete, stainless steel, without height compensation (European Technical Approval ETA-05/0018)	1410535	4.80
	Joint clamp for guy cable and snowguard system 1"	1430508	17.-		Anchor bolt for concrete, stainless steel, without height compensation (European Technical Approval ETA-05/0018)	1430529	14.-
	Solar bracket for side locks plates	1430032	57.-		Gravel pan for freestanding installation on gravelled flat roofs (underlay fleece may be necessary). Filling volume: approx. 225 litres.	1410436	360.-
	Bitumen flange plate for bitumen roof, height 50 mm	1420644	39.-				

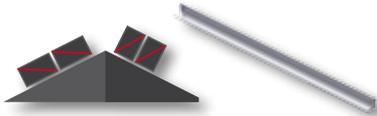
¹⁾ Complete the data sheet when ordering (required for internal processing).
Caution: not held in stock

²⁾ Complete the data sheet when ordering (required for internal processing). Caution: Check standing installation of PFM-VV at right angles to the gable separately!

In order to prevent damage to roofing tiles under increased snow loads, it is recommended to use roofing tiles made of metal. We assume no liability whatsoever for damage to roofing tiles in the vicinity of roof attachment points.



ACCESSORIES FOR COLLECTOR MOUNTING MATERIAL – PARALLEL AND ON-ROOF RAISED



Bracing set for PFM and PFM-G

For additional attachment of the collectors when installing at right angles to the gable, roof pitch 10° - 30°.

Type	Item no.	Use	Price
VS-S-G	1430789	PFM-G-S bracing set*	20.-
VS-W-G	1430790	PFM-G-W bracing set*	30.-

* 2 sets are required per collector field



Aluminium sections for installation

For the installation of diverse custom-made designs.

Type	Item no.	Quantity	Price/ linear metre
UG 09	1020773	Aluminium profile, length 6.15 m*	9.90

*Shipping costs depending on expenditure

PFM intermediate sheet

Intermediate sheet for covering the distance between two positioned side by side panels.

Type	Item no.	Collector	Price
PFM-ZB 2,01	1410768	Intermediate sheet PFM-S 2,01	56.-
PFM-ZB 2,55	1410769	Intermediate sheet PFM-S 2,55	65.-
PFM-ZB 3,30	1410770	Intermediate sheet PFM-S 3,30	77.-
PFM-ZB W	1410771	Intermediate sheet PFM-W	47.-

Lateral PFM piping shaft

The lateral piping shaft of anthracite-coated aluminum sheet is used for protection and optical coverage of the connector of the PFM collectors. Set consists of piping shaft and mounting hardware.

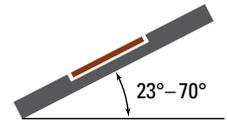
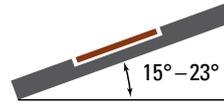
Type	Item no.	Collector	Price
PFM-VS 2,01	1410772	Piping shaft PFM-S 2,01	135.-
PFM-VS 2,55	1410773	Piping shaft PFM-S 2,55	175.-
PFM-VS 3,30	1410774	Piping shaft PFM-S 3,30	235.-
PFM-VS W	1410775	Piping shaft PFM-W	105.-



FLASHING SETS FOR PFM AND PFM-G

Flashing for module collectors PFM-S/W, large scale collectors PF-G-S/W

Rainproof aluminum sheet flashing in anthracite for tiled roof, plain tile, slate and convex tile. For a roof pitch of 15° - 23° or 23° - 70°, simple pluggable and extensible. (incl. mounting material)



Type	Collectors / Nuber of fields for PFM-G	Required connection set	Item no.	Preis	Item no.	Price
2 x PFM-S 2,01	x	1	1421039	581.-	1421080	541.-
2 x PFM-S 2,55	x	1	1421048	644.-	1421089	572.-
2 x PFM-S 3,30	x	1	1421057	681.-	1421098	609.-
3 x PFM-S 2,01	x	2	1421040	840.-	1421081	764.-
3 x PFM-S 2,55	x	2	1421049	910.-	1421090	803.-
3 x PFM-S 3,30	x	2	1421058	958.-	1421099	845.-
4 x PFM-S 2,01	x	3	1421041	1,099.-	1421082	987.-
4 x PFM-S 2,55	x	3	1421050	1,176.-	1421091	1,034.-
4 x PFM-S 3,30	x	3	1421059	1,235.-	1421100	1,081.-
5 x PFM-S 2,01	x	4	1421042	1,358.-	1421083	1,210.-
5 x PFM-S 2,55	x	4	1421051	1,442.-	1421092	1,265.-
5 x PFM-S 3,30	x	4	1421060	1,512.-	1421101	1,317.-
6 x PFM-S 2,01		5	1421043	1,617.-	1421084	1,433.-
6 x PFM-S 2,55		5	1421052	1,708.-	1421093	1,496.-
6 x PFM-S 3,30		5	1421061	1,789.-	1421102	1,553.-
7 x PFM-S 2,01		6	1421044	1,876.-	1421085	1,656.-
7 x PFM-S 2,55		6	1421053	1,974.-	1421094	1,727.-
7 x PFM-S 3,30		6	1421062	2,066.-	1421103	1,789.-
8 x PFM-S 2,01		7	1421045	2,135.-	1421086	1,879.-
8 x PFM-S 2,55		7	1421054	2,240.-	1421095	1,958.-
8 x PFM-S 3,30		7	1421063	2,343.-	1421104	2,025.-
9 x PFM-S 2,01		8	1421046	2,394.-	1421087	2,102.-
9 x PFM-S 2,55		8	1421055	2,506.-	1421096	2,189.-
9 x PFM-S 3,30		8	1421064	2,620.-	1421105	2,261.-
10 x PFM-S 2,01		9	1421047	2,653.-	1421088	2,325.-
10 x PFM-S 2,55		9	1421056	2,772.-	1421097	2,420.-
10 x PFM-S 3,30		9	1421065	2,897.-	1421106	2,497.-
2 x PFM-W 2,01	x	1	1421066	845.-	1421107	733.-
2 x PFM-W 2,55	x	1	1421072	909.-	1421113	776.-
2 x PFM-W 3,30	x	1	1421077	992.-	1421118	864.-
3 x PFM-W 2,01	x	2	1421067	1,217.-	1421108	1,071.-
3 x PFM-W 2,55	x	2	1421073	1,313.-	1421114	1,142.-
3 x PFM-W 3,30		2	1421078	1,436.-	1421119	1,265.-
4 x PFM-W 2,01		3	1421068	1,589.-	1421109	1,409.-
4 x PFM-W 2,55		3	1421074	1,717.-	1421115	1,508.-
4 x PFM-W 3,30		3	1421079	1,880.-	1421120	1,666.-
5 x PFM-W 2,01		4	1421069	1,961.-	1421110	1,747.-
5 x PFM-W 2,55		4	1421075	2,121.-	1421116	1,874.-
6 x PFM-W 2,01		5	1421070	2,333.-	1421111	2,085.-

Caution: The hydraulic connector (except PFM-G) and the main connector set is not included in the scope of delivery or, respectively, must be selected separately according to the overview on page 16.

X = ident for the respective PFM-G

Flashing for module collectors PFM-S/W, large scale collectors PFM-G-S/W for 2 or more fields staked

Rainproof aluminum sheet edging in anthracite for tiled roof, plain tile, slate and convex tile. For a roof pitch of 15° - 23° or 23° - 70°, simple pluggable and extensible. (incl. mounting material)

Type	Collectors	Required connection set	PFM 2,01 PFM-G 2,01		PFM 2,55 PFM-G 2,55		PFM 3,30 PFM-G 3,30		
			15°-23°	23°-70°	15°-23°	23°-70°	15°-23°	23°-70°	
Basic set first row		1	Item no.	1410708	1410738	1410718	1410748	1410728	1410758
			Price	581.–	541.–	644.–	572.–	681.–	609.–
Basic set first row		1	Item no.	1410713	1410743	1410723	1410753	1410733	1410763
			Price	845.–	733.–	909.–	776.–	992.–	864.–
Expansion set first row / Collector		1	Item no.	1410709	1410739	1410719	1410749	1410729	1410759
			Price	259.–	223.–	266.–	231.–	277.–	236.–
Expansion set first row / Collector		1	Item no.	1410714	1410744	1410724	1410754	1410734	1410764
			Price	372.–	338.–	404.–	366.–	444.–	401.–
Basic set second row		1	Item no.	1410710	1410740	1410720	1410750	1410730	1410760
			Price	217.–	211.–	283.–	276.–	322.–	316.–
Basic set second row / Collector		1	Item no.	1410715	1410745	1410725	1410755	1410735	1410765
			Price	182.–	176.–	190.–	183.–	201.–	194.–
Expansion set second row / Collector		1	Item no.	1410711	1410741	1410721	1410751	1410731	1410761
			Price	111.–	107.–	118.–	114.–	129.–	126.–
Expansion set second row / Collector		1	Item no.	1410716	1410746	1410726	1410756	1410736	1410766
			Price	182.–	176.–	190.–	183.–	201.–	194.–
Singel Collector Set		0	Item no.	1410712	1410742	1410722	1410752	1410732	1410762
			Price	346.–	457.–	402.–	481.–	427.–	512.–
Singel Collector Set		0	Item no.	1410717	1410747	1410727	1410757	1410737	1410767
			Price	473.–	411.–	506.–	441.–	548.–	479.–

Caution: The hydraulic connector (except PFM-G) and the main connector set is not included in the scope of delivery or, respectively, must be selected separately according to the overview on page 16.



Hydraulic basic set copper

The HGC includes all connections necessary to connect a collector field to the copper piping.

Set contains: 1x PFM fitting with immersion sleeve CU 22mm, 1x PFM fitting with a blind threaded connection CU 22 mm, 2x PFM blind plug, 4x PFM end plate incl. mounting material

Type	Item no.	Designation	Price
HGC	1530031	Hydraulic basic set, copper, 22 mm	83.-

Hydraulic basic set corrugated pipe

The HGW includes all connections necessary to connect a collector field to the TiSUN corrugated piping system.

**Leak-tightness guarantee
from TiSUN
HGW ONLY with TiSUN
corrugated pipe piping system**

The corrugated pipe must be additionally ordered in the corresponding length.

Set contains: 1x PFM fitting with immersion sleeve, 1x PFM fitting with a blind threaded connection WR, 2x PFM blind plugs, 4x PFM end plate incl. mounting material

**Sample for ordering
Corrugated piping system:**

**Hydr.basic set corrugated pipe
+
dual corrugated pipe in the
required length
+
fittings (if needed)**

Type	Item no.	Designation	Price
HGW 16	1530032	Hydraulic basic set, corrugated pipe DN16	74.-
HGW 20	1530033	Hydraulic basic set, corrugated pipe DN20	86.-



Caution: Using corrugated stainless steel piping must be according to the pressure drop of the system and to the delivery height of the pump. We recommend a continuous piping from collector to the solar station by using the TiSUN Quick Connect System. (Page 17)

Hydraulic extension set



Type	Item no.	Designation	Price
HE-PFM	1040715	PFM Connector 96 mm with pre-assembled O-rings (set of 2)	14.-

Dual corrugated pipe

The dual corrugated pipe (DWR) simplifies collector connection until the roof insertion or the complete piping of the solar station unit.

Stainless steel dual corrugated pipe AISI316L (DIN1.4404) with separable 13 mm strong EPDM insulation (high-temperature, UV and ozone-resistant, with tear-resistant covering; max. 150°C), incl. sensor cable, 4x protective caps and 4x shrink sleeves for weather-resistant installation without the ingress of foreign objects (up to length of 50 m).

DN 16



Type	Item no.	Designation	Price
DWR16-1	1530015	Dual corrugated pipe DN16 - 1.0 m	40.-
DWR16-3	1530016	Dual corrugated pipe DN16 - 3.0 m	88.-
DWR16-5	1530017	Dual corrugated pipe DN16 - 5.0 m	136.-
DWR16-10	1530018	Dual corrugated pipe DN16 - 10.0 m	255.-
DWR16-15	1530019	Dual corrugated pipe DN16 - 15.0 m	375.-
DWR16-20	1530020	Dual corrugated pipe DN16 - 20.0 m	495.-
DWR16-25	1530021	Dual corrugated pipe DN16 - 25.0 m	615.-
DWR16-50	1510695	Dual corrugated pipe DN16 - 50.0 m	1,200.-
DWR16-SL	1530022	Dual corrugated pipe DN16 - Special length (max. 50.0m)	40.-

DN 20



Type	Item no.	Designation	Price
DWR20-1	1530023	Dual corrugated pipe DN20 - 1.0 m	44.-
DWR20-3	1530024	Dual corrugated pipe DN20 - 3.0 m	101.-
DWR20-5	1530025	Dual corrugated pipe DN20 - 5.0 m	157.-
DWR20-10	1530026	Dual corrugated pipe DN20 - 10.0 m	299.-
DWR20-15	1530027	Dual corrugated pipe DN20 - 15.0 m	440.-
DWR20-20	1530028	Dual corrugated pipe DN20 - 20.0 m	582.-
DWR20-25	1530029	Dual corrugated pipe DN20 - 25.0 m	723.-
DWR20-50	1510696	Dual corrugated pipe DN20 - 50.0 m	1,450.-
DWR16-SL	1530030	Dual corrugated pipe DN20 - special length (max. 50.0 m)	44.-



All PFM fittings incl. PFM end plate and mounting material

QUICK COUPLING SYSTEM FOR STAINLESS STEEL CORRUGATED PIPE

Corrugated pipe to corrugated pipe coupling



Type	Item no.	Designation	Price
K 16	1510653	DN16 / DN16	21.-
K 20	1510654	DN20 / DN20	26.-

Corrugated pipe to copper adapter



Type	Item no.	Designation	Price
SR 16/18	1510683	DN16 / 18 mm	16.-
SR 16/22	1510684	DN16 / 22 mm	17.-
SR 20/18	1510685	DN20 / 18 mm	18.-
SR 20/22	1510686	DN20 / 22 mm	19.-

Corrugated pipe to solar station adapter



Type	Item no.	Designation	Price
US 16/22	1510687	DN16 / 22 mm	16.-
US 20/22	1510688	DN20 / 22 mm	21.-

Corrugated pipe to external thread 3/4" adapter



Type	Item no.	Designation	Price
AG 16	1510745	DN16 / AG 3/4"	14.-
AG 20	1510746	DN20 / AG 3/4"	15.-



PFM fitting – immersion sleeve, Cu 22 mm

Type	Item no.	Designation	Price
KCT 20/22	1410703	DN20 / 22 mm	32.-



PFM fitting – blind threaded connection, Cu 22 mm

Type	Item no.	Designation	Price
KCB 20/22	1410702	DN20 / 22 mm	28.-



PFM fitting – immersion sleeve, corrugated pipe

Type	Item no.	Designation	Price
KWT 20/16	1410704	DN20 / DN16	26.-
KWT 20/20	1410705	DN20 / DN20	35.-



PFM fitting – blind threaded connection corrugated pipe

Type	Item no.	Designation	Price
KWB 20/16	1410701	DN20 / DN16	25.-
KWB 20/20	1410706	DN20 / DN20	28.-



PFM Blindplug

Type	Item no.	Designation	Price
PFM B	1040716	PFM Blindplug	12.-

ADDITIONAL PIPING ACCESSORIES

Silicone sealing tape



For sealing the gap between insulation material and corrugated pipe. Temperature resistance from -50 °C to +260 °C, self-sealing, flexible and UV-resistant.

Type	Item no.	Designation	Price
SDB 40	1510333	Silicone sealing tape 40 x 2000 mm	22.-

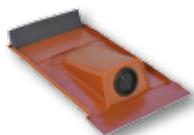
Pipe collar for roof insertion



The weather-resistant, easy-to-install pipe collar with seal can be used to insert insulated solar piping through the roof. The scope of delivery includes bulb-tite rivets for corrugated cement asbestos and drilling screws for installation on all sheet metal roofs, plus sealing compound in a practical application cartridge and installation instructions.

Type	Item no.	Designation	Price
DD-RM	1410230	Pipe collar for roof insertion Ø 20 - 70 mm	96.-

Universal pipe insertion for tiled roofs



Pipe insertion element made of galvanised steel plate, together with lead apron for contour alignment and EPDM lead-through sleeve. Designed for pipe diameters of 20-65 mm. Can be used for clay roof tiles with a width of up to 270 mm and for plain tiles, universal application for large-size tiles. Suitable for roof pitches of 15° and more. Each set contains 2 items.

Type	Item no.	Designation	Price
DD-UNI	1410624	Universal pipe insertion for tiled roofs Ø 20-65 mm (set of 2x)	125.-

Dual pipe clamp



Oval clamp for attaching dual corrugated piping (incl. screws and wall plugs). Each set contains 2 dual pipe clamps.

Type	Item no.	Designation	Price
S 16/20	1510694	Dual pipe clamp set DN16 / DN20	9.50

Protective pipe caps and shrink sleeve set for dual corrugated pipe



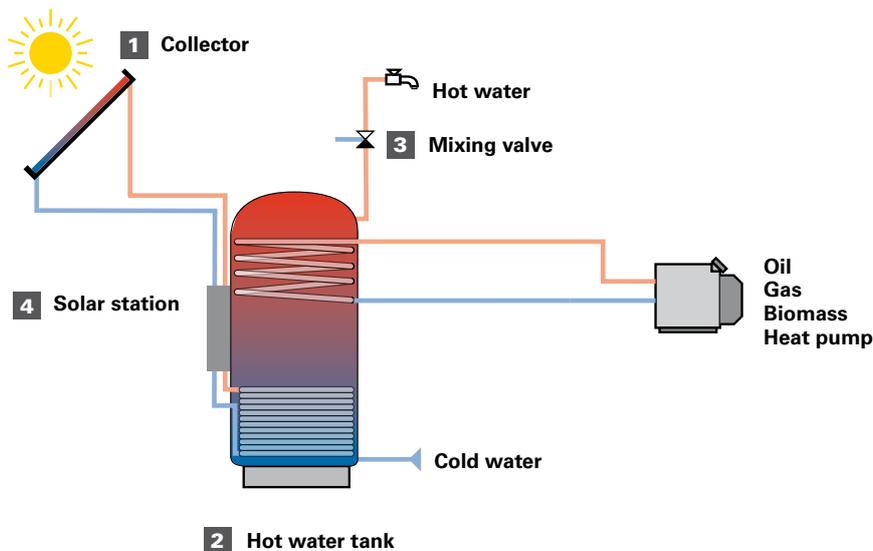
A set contains: 2x protective pipe caps and 2x shrink sleeves

Type	Item no.	Designation	Price
SKSS 16	1530034	DN16 protective pipe cap and shrink sleeve	3.-
SKSS 20	1530035	DN20 protective pipe cap and shrink sleeve	4.-

SWS SOLAR HOT WATER SET

MODULE COLLECTORS 2,01/2,55 AND HOT WATER TANK BE-SSP-2R

Functional diagram



Components

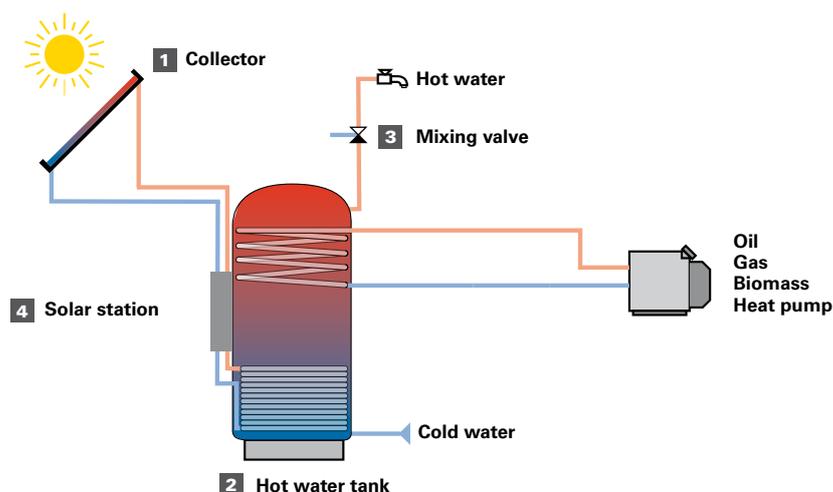
	<p>1 Module collector PFM-S 2,01/2,55 (vertical) or PFM-W 2,01/2,55 (horizontal)</p> <ul style="list-style-type: none"> ▪ Easy installation of the collectors (Plug & Flow) and suitable for various attachment systems (in-roof, on-roof, parallel and freestanding installation). ▪ High degree of efficiency, proven by test certificates ▪ Very rugged and resistant construction
	<p>2 BE-SSP-2R solar hot water tank incl. insulating material</p> <ul style="list-style-type: none"> ▪ Direct-enamelled, with an upper register and a solar coil in the lowest, cold zone, together with a large surface area for rapid water heating ▪ Solar tanks with minimum heat loss and fast installation (up to 500 litres fixed hard polyurethane foam, over 500 litres with polyester fibre fleece insulation)
	<p>3 Domestic hot water mixing valve BMV</p>
	<p>4a Solarstation SFRE 25 for wall or tank installation Single-line solar station with Simplex solar control unit, standard pump and flow meter</p> <ul style="list-style-type: none"> ▪ Compact TiSUN EPP heat insulation jacket with integrated control unit ▪ Incl. solar expansion tank with corresponding connection set ▪ Heat metering optionally available possible (with flow rate measure device; not included in the set) <p>4b SFR 25 solar station for wall or tank installation Dual-line solar station with Simplex solar control unit, standard pump and flow meter.</p> <ul style="list-style-type: none"> ▪ Compact TiSUN EPP heat insulation jacket with integrated control unit ▪ Incl. solar expansion tank with corresponding connection set ▪ Optionally available heat quantity meter possible (with volume measuring instrument; not included in the set) <p>4c SSR 25 solar station for wall and tank mounting Dual-line solar station with Duplex system control unit, standard pump and flow sensor.</p> <ul style="list-style-type: none"> ▪ Compact TiSUN EPP heat insulation jacket with integrated control unit ▪ Incl. solar expansion tank with corresponding connection set ▪ Incl. heat quantity meter using integrated VFS sensor ▪ Incl. gravity brake and bleeder in the solar forward flow
	<p>Frost protection concentrate Solar expansion vessel</p>

NEW

With heat metering

MODULE COLLECTORS 2,01 / 2,55 AND HOT WATER TANK BE-SSP-2R PART 1

Functional diagram



Set	PF-SWS 2S/200/SFRE	PF-SWS 2W/200/SFRE	PF-SWS 2,5S/200/SFRE	PF-SWS 2,5W/200/SFRE	PF-SWS 4S/300/SFRE	PF-SWS 4W/300/SFRE	PF-SWS 5S/300/SFRE	PF-SWS 5W/300/SFRE
Item no.	1320960	1320961	1320962	1320963	1320964	1320965	1320966	1320967
Dimensioning proposal	2 persons	2 persons	3 persons	3 persons	4 persons	4 persons	4 persons	4 persons
Collectors	1 x PFM-S 2,01 2.01 m ²	1 x PFM-W 2,01 2.01 m ²	1 x PFM-S 2,55 2.55 m ²	1 x PFM-W 2,55 2.55 m ²	2 x PFM-S 2,01 4.02 m ²	2 x PFM-W 2,01 4.02 m ²	2 x PFM-S 2,55 5.1 m ²	2 x PFM-W 2,55 5.1 m ²
Storage tank incl. insulation	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 300	BE-SSP-2R 300	BE-SSP-2R 300	BE-SSP-2R 300
Solar station	SFRE 25	SFRE 25	SFRE 25					
Expansion tank	SAG 12R	SAG 12R	SAG 12R	SAG 12R	SAG 18R	SAG 18R	SAG 18R	SAG 18R
Frost protection concentrate	10 l	10 l	10 l					
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34
Price	2,470.-	2,490.-	2,515.-	2,545.-	2,990.-	3,030.-	3,375.-	3,435.-

Set	PF-SWS 6S/500/SFRE	PF-SWS 6W/500/SFRE	PF-SWS 7,5S/400/SFRE	PF-SWS 7,5W/400/SFRE	PF-SWS 7,5S/500/SFRE	PF-SWS 7,5W/500/SFRE	PF-SWS 10S/500/SFRE	PF-SWS 10W/500/SFRE
Item no.	1320968	1320969	1320970	1320971	1320972	1320973	1320974	1320975
Dimensioning proposal	5 persons	6 persons	6 persons					
Collectors	3 x PFM-S 2,01 6.03 m ²	3 x PFM-W 2,01 6.03 m ²	3 x PFM-S 2,55 7.65 m ²	3 x PFM-W 2,55 7.65 m ²	3 x PFM-S 2,55 7.65 m ²	3 x PFM-W 2,55 7.65 m ²	4 x PFM-S 2,55 10.2 m ²	4 x PFM-W 2,55 10.2 m ²
Storage tank incl. insulation	BE-SSP-2R 500	BE-SSP-2R 500	BE-SSP-2R 400	BE-SSP-2R 400	BE-SSP-2R 500	BE-SSP-2R 500	BE-SSP-2R 500	BE-SSP-2R 500
Solar station	SFRE 25							
Expansion tank	SAG 25R	SAG 33R	SAG 33R					
Frost protection concentrate	15 l							
Domestic hot water mixing valve BMV	BMV34							
Price	3,875.-	3,935.-	4,525.-	4,615.-	4,705.-	4,795.-	5,390.-	5,510.-

Caution! Prices do not include collector mounting and piping material (at additional cost).

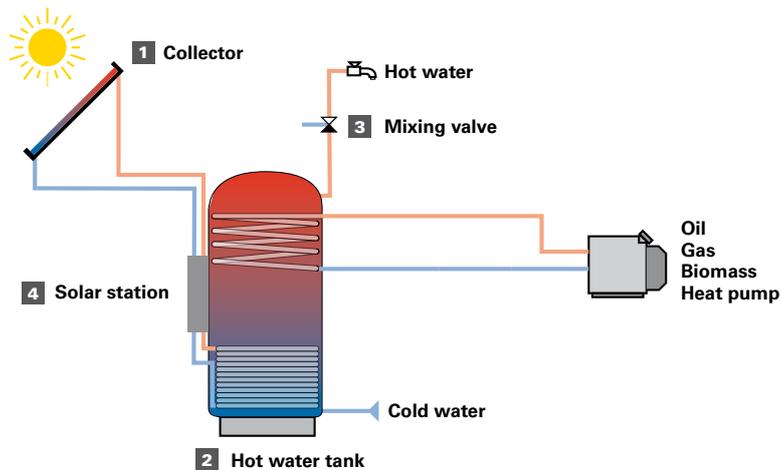
Accessories at additional cost

- Piping set – see page 16
- Boiler safety group – see page 54
- Flowrate measure device for heat metering – see page 34
- Gravity brake for solar forward flow – see page 38

SWS SOLAR HOT WATER SET

MODULE COLLECTORS 2,01 / 2,55 AND HOT WATER TANK BE-SSP-2R PART 2

Functional diagram



Set	PF-SWS 2S/200/SFR	PF-SWS 2W/200/SFR	PF-SWS 2.5S/200/SFR	PF-SWS 2.5W/200/SFR	PF-SWS 4S/300/SFR	PF-SWS 4W/300/SFR	PF-SWS 5S/300/SFR	PF-SWS 5W/300/SFR
Item no.	1320976	1320977	1320978	1320979	1320980	1320981	1320982	1320983
Dimensioning proposal	2 persons	2 persons	3 persons	3 persons	4 persons	4 persons	4 persons	4 persons
Collectors	1 × PFM-S 2,01 2,01 m ²	1 × PFM-W 2,01 2,01 m ²	1 × PFM-S 2,55 2,55 m ²	1 × PFM-W 2,55 2,55 m ²	2 × PFM-S 2,01 4,02 m ²	2 × PFM-W 2,01 4,02 m ²	2 × PFM-S 2,55 5,1 m ²	2 × PFM-W 2,55 5,1 m ²
Storage tank incl. insulation	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 300	BE-SSP-2R 300	BE-SSP-2R 300	BE-SSP-2R 300
Solar station	SFR 25	SFR 25	SFR 25					
Expansion tank	SAG 12R	SAG 12R	SAG 12R	SAG 12R	SAG 18R	SAG 18R	SAG 18R	SAG 18R
Frost protection concentrate	10 l	10 l	10 l					
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34
Price	2,390.-	2,430.-	2,510.-	2,540.-	3,090.-	3,130.-	3,430.-	3,490.-

Set	PF-SWS 2S/200/SSR	PF-SWS 2W/200/SSR	PF-SWS 2.5S/200/SSR	PF-SWS 2.5W/200/SSR	PF-SWS 5S/300/SSR
Item no.	1320992	1320993	1320994	1320995	1320996
Dimensioning proposal	2 persons	2 persons	3 persons	3 persons	4 persons
Collectors	1 × PFM-S 2,01 2,01 m ²	1 × PFM-W 2,01 2,01 m ²	1 × PFM-S 2,55 2,55 m ²	1 × PFM-W 2,55 2,55 m ²	2 × PFM-S 2,55 5,1 m ²
Storage tank incl. insulation	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 200	BE-SSP-2R 300
Solar station	SSR 25	SSR 25	SSR 25	SSR 25	SSR 25
Expansion tank	SAG 12R	SAG 12R	SAG 12R	SAG 12R	SAG 18R
Heat quantity metering	✓	✓	✓	✓	✓
Frost protection concentrate	10 l	10 l	10 l	10 l	10 l
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV34	BMV34	BMV34
Price	2,930.-	2,950.-	2,790.-	2,820.-	3,690.-

⚠ Caution! Prices do not include collector mounting and piping material (at additional cost).

Accessories at additional cost

- Piping set – see page 16
- Boiler safety group – see page 54
- Flowrate measure device for heat metering– see page 34
- Gravity brake for solar forward flow – see page 38



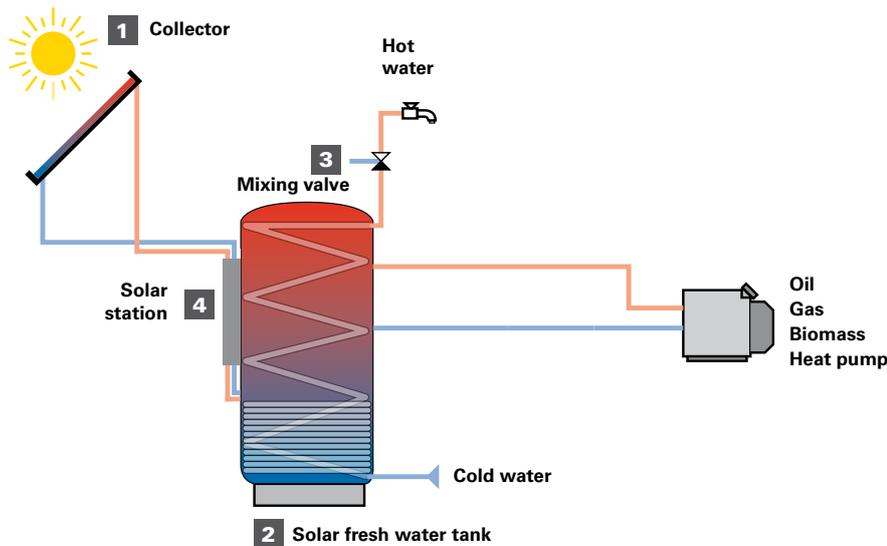
PF-SWS 6S/500/SFR	PF-SWS 6W/500/SFR	PF-SWS 7.5S/400/SFR	PF-SWS 7.5W/400/SFR	PF-SWS 7.5S/500/SFR	PF-SWS 7.5W/500/SFR	PF-SWS 10S/500/SFR	PF-SWS 10W/500/SFR
1320984	1320985	1320986	1320987	1320988	1320989	1320990	1320991
5 persons	6 persons	6 persons					
3 × PFM-S 2,01 6.03 m ² 	3 × PFM-W 2,01 6.03 m ² 	3 × PFM-S 2,55 7.65 m ² 	3 × PFM-W 2,55 7.65 m ² 	3 × PFM-S 2,55 7.65 m ² 	3 × PFM-W 2,55 7.65 m ² 	4 × PFM-S 2,55 10.2 m ² 	4 × PFM-W 2,55 10.2 m ² 
BE-SSP-2R 500	BE-SSP-2R 500	BE-SSP-2R 400	BE-SSP-2R 400	BE-SSP-2R 500	BE-SSP-2R 500	BE-SSP-2R 500	BE-SSP-2R 500
SFR 25	SFR 25	SFR 25					
SAG 25R	SAG 33R	SAG 33R					
15 l	15 l	15 l					
BMV34	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34	BMV34
3,875.-	3,935.-	4,550.-	4,640.-	4,725.-	4,815.-	5,290.-	5,410.-

PF-SWS 5W/300/SSR	PF-SWS 7.5S/400/SSR	PF-SWS 7.5W/400/SSR	PF-SWS 7.5S/500/SSR	PF-SWS 7.5W/500/SSR
1320997	1320998	1320999	1321000	1321001
4 persons	5 persons	5 persons	5 persons	5 persons
2 × PFM-W 2,55 5.1 m ² 	3 × PFM-S 2,55 7.65 m ² 	3 × PFM-W 2,55 7.65 m ² 	3 × PFM-S 2,55 7.65 m ² 	3 × PFM-W 2,55 7.65 m ² 
BE-SSP-2R 300	BE-SSP-2R 400	BE-SSP-2R 400	BE-SSP-2R 500	BE-SSP-2R 500
SSR 25	SSR 25	SSR 25	SSR 25	SSR 25
SAG 18R	SAG 25R	SAG 25R	SAG 25R	SAG 25R
✓	✓	✓	✓	✓
10 l	15 l	15 l	15 l	15 l
BMV34	BMV34	BMV34	BMV34	BMV34
3,750.-	4,750.-	4,840.-	4,960.-	5,040.-

SFS SOLAR FRESH WATER SET

MODULE COLLECTORS 2,01 AND FRESH WATER TANK FS/1R

Fresh water tank functional diagram



Domestic hot water systems with decentralised, germ-free water heating. Higher operating temperatures for the hot water enable an improved solar yield in comparison with boiler systems. The domestic hot water heating is conducted hygienically according to the continuous flow principle in maintenance-free operation. Partial solar space heating for countries with solar radiation above 1000 W/m².

Components



1 Module collector PFM-S 2,01 (vertical) or PFM-W 2,01 (horizontal)

- Easy installation of the collectors (Plug & Flow) and suitable for various attachment systems (in-roof, on-roof, parallel and freestanding installation).
- High degree of efficiency, proven by test certificates
- Very rugged and resistant construction



2 FS/1R solar fresh water tank, incl. insulation material

- Compact multi-functional solar tank system for domestic hot water and heating, including solar coil
- Solar heat exchanger in the lowest, cold zone with a very large surface area
- Hygienic domestic hot water heating, flowing through a special corrugated stainless steel pipe



3 Domestic hot water mixing valve BMV



4 SFR 25 solar station for wall or tank installation

Dual-line solar station with Simplex solar control unit, standard pump and flow meter.

- Compact TISUN EPP heat insulation jacket with integrated control unit
- incl. solar expansion tank with corresponding connection set
- Optionally available heat quantity meter possible (with volume measuring instrument; not included in the set)

NEW



Frost protection fluid concentrate
Solar expansion tank

Set	PF-SFS 4S/375/SFR	PF-SFS 4W/375/SFR	PF-SFS 6S/500/SFR
Item no.	1321002	1321003	1321004
Dimensioning proposal	4 persons	4 persons	5 persons
Collectors	2 × PFM-S 2,01 4.02 m ² 	2 × PFM-W 2,01 4.02 m ² 	3 × PFM-S 2,01 6.03 m ² 
Storage tank incl. insulation	FS 375/1R	FS 375/1R	FS 500/1R
Solar station	SFR 25	SFR 25	SFR 25
Expansion tank	SAG 18R	SAG 18R	SAG 25R
Antifreeze concentrate	10 l	10 l	15 l
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV34
Price	4,190.-	4,240.-	4,890.-

Set	PF-SFS 6W/500/SFR	PF-SFS 8S/800/SFR	PF-SFS 8W/800/SFR
Item no.	1321005	1321006	1321007
Dimensioning proposal	5 persons	8 persons	8 persons
Collectors	3 × PFM-W 2,01 6.03 m ² 	4 × PFM-S 2,01 8.04 m ² 	4 × PFM-W 2,01 8.04 m ² 
Storage tank incl. insulation	FS 500/1R	FS 800/1R	FS 800/1R
Solar station	SFR 25	SFR 25	SFR 25
Expansion tank	SAG 28R	SAG 25R	SAG 25R
Antifreeze concentrate	15 l	15 l	15 l
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV34
Price	4,950.-	5,790.-	5,870.-

 **Caution!** Prices do not include collector mounting and piping material (at additional cost).

Accessories at additional cost

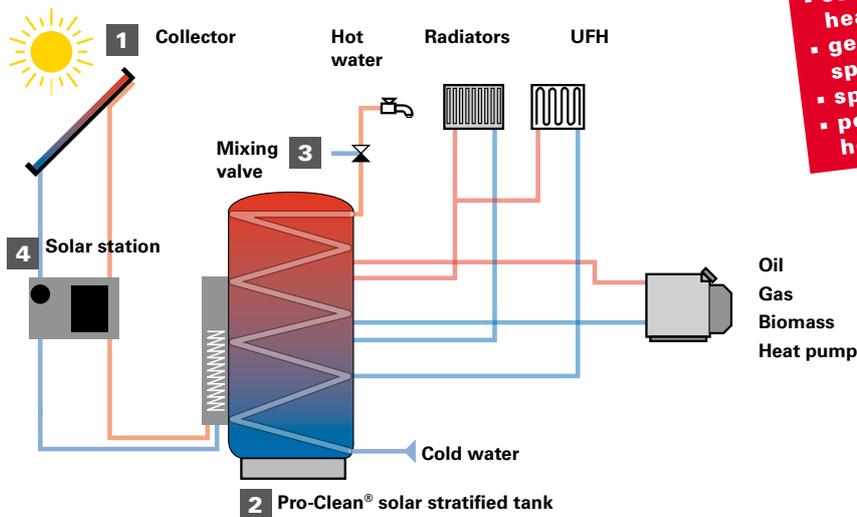
- Piping set – see page 16
- Boiler safety centre – see page 54
- Flowrate measure device for heat metering – see page 34



SHS SOLAR HEATING SET

MODULE COLLECTOR 2,55 AND STRATIFIED TANK PRO-CLEAN®

Functional diagram



- simple utilisation of solar energy for hot water and heating
- solar priority shift for faster hot water heating
- germ-free fresh water heating using a special corrugated stainless steel pipe
- space saving design
- possibility to reheat with all conventional heating systems

Components with Pro-Clean® solar stratified tank



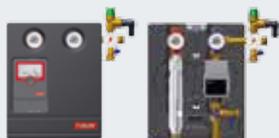
- 1 Module collector PFM-S 2,55 (vertical) or PFM-W 2,55 (horizontal)**
 - Easy installation of the collectors (Plug & Flow) and suitable for various attachment systems (in-roof, on-roof, parallel and freestanding installation).
 - High degree of efficiency, proven by test certificates
 - Very rugged and resistant construction



- 2 Pro-Clean® solar stratified tank, incl. insulating material and spherical exchanger**
 - Patented stratified charging system
 - Optimum use of solar energy for hot water and heating
 - Simple functional concept without complicated technology (natural principle) = long service life
 - Hygienic domestic hot water heating, flowing through a special corrugated stainless steel pipe



- 3 Domestic hot water mixing valve BMV**



- 4 SSRH 25/50 solar station for wall mounting**
Dual-line solar station with Duplex system control unit, HE pump and flow sensor,
 - with a high-efficiency circulation pump -> ErP-ready
 - Compact TISUN EPP heat insulation jacket with integrated control unit
 - Incl. solar expansion tank with corresponding connection set
 - Incl. heat metering using integrated VFS sensor
 - Incl. electronic speed control for optimised operation
 - Incl. gravity brake and bleeder in the Solar Forwar Flow

With high-efficiency energy-saving pump

With heat metering



- Frost protection fluid ready-mixed
- Solar expansion tank

Set	PF-SHS 10S/PC 500/SSRH	PF-SHS 10W/PC 500/SSRH	PF-SHS 10S/PC 800/SSRH	PF-SHS 10W/PC 800/SSRH	PF-SHS 12,5S/PC 800/SSRH
Item no.	1321008	1321009	1321010	1321011	1321012
Proposal for dimensioning/persons	Up to 4 persons	Up to 4 persons	Up to 5 persons	Up to 5 persons	Up to 6 persons
Collectors	4 x PFM-S 2,55 10.20 m ² 	4 x PFM-W 2,55 10.20 m ² 	4 x PFM-S 2,55 10.20 m ² 	4 x PFM-W 2,55 10.20 m ² 	5 x PFM-S 2,55 12.75 m ²
Storage tank incl. insulation	PC 500	PC 500	PC 800	PC 800	PC 800
Solar station	SSRH 25				
Expansion tank	SAG 33R				
Spherical exchanger	ST 10	ST 10	ST 10	ST 10	ST 20
Heat quantity metering	✓	✓	✓	✓	✓
Frost protection concentrate	48 l				
Domestic hot water mixer BMV	BMV34	BMV34	BMV34	BMV34	BMV34
Price	7,590.-	7,710.-	8,015.-	8,135.-	8,650.-

Set	PF-SHS 12,5W/PC 800/SSRH	PF-SHS 12,5S/PC 1000S/SSRH	PF-SHS 12,5W/PC 1000S/SSRH	PF-SHS 15S/PC 1000S/SSRH	PF-SHS 15W/PC 1000S/SSRH
Item no.	1321013	1321014	1321015	1321016	1321017
Proposal for dimensioning/persons	Up to 6 persons	Up to 6 persons	Up to 6 persons	Up to 7 persons	Up to 7 persons
Collectors	5 x PFM-W 2,55 12.75 m ² 	5 x PFM-S 2,55 12.75 m ² 	5 x PFM-W 2,55 12.75 m ² 	6 x PFM-S 2,55 15.30 m ² 	6 x PFM-W 2,55 15.30 m ²
Storage tank incl. insulation	PC 800	PC 1000-S	PC 1000-S	PC 1000-S	PC 1000-S
Solar station	SSRH 25				
Expansion tank	SAG 33R	SAG 33R	SAG 33R	SAG 50R	SAG 50R
Spherical exchanger	ST 20				
Heat quantity metering	✓	✓	✓	✓	✓
Frost protection ready-mixed	48 l				
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV34	BMV34	BMV34
Price	8,800.-	9,010.-	9,160.-	9,730.-	9,910.-

Set	PF-SHS 15S/PC 1250/SSRH	PF-SHS 15W/PC 1250/SSRH	PF-SHS 20S/PC 1500/SSRH	PF-SHS 20W/PC 1500/SSRH	PF-SHS 25,5S/PC 2000/SSRH	PF-SHS 25,5W/PC 2000/SSRH
Item no.	1321018	1321019	1321020	1321021	1321022	1321023
Proposal for dimensioning/persons	Up to 7 persons	Up to 7 persons	Up to 8 persons	Up to 8 persons	Up to 10 persons	Up to 10 persons
Collectors	6 x PFM-S 2,55 15.30 m ² 	6 x PFM-W 2,55 15.30 m ² 	8 x PFM-S 2,55 20.40 m ² 	8 x PFM-W 2,55 20.40 m ² 	10 x PFM-S 2,55 25.50 m ² 	10 x PFM-W 2,55 25.50 m ²
Storage tank incl. insulation	PC 1250	PC 1250	PC 1500	PC 1500	PC 2000	PC 2000
Solar station	SSRH 25	SSRH 25	SSRH 50	SSRH 50	SSRH 50	SSRH 50
Expansion tank	SAG 50R (standing tank)	SAG 50R (standing tank)	SAG 80R (standing tank)	SAG 80R (standing tank)	SAG 80R (standing tank)	SAG 80R (standing tank)
Spherical exchanger	ST 20	ST 20	ST 20	ST 20	ST 40	ST 40
Heat quantity metering	✓	✓	✓	✓	✓	✓
Frost protection ready-mixed	48 l	48 l	48 l	48 l	72 l	72 l
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV1	BMV1	BMV1	BMV1
Price	10,390.-	10,570.-	12,250.-	12,490.-	14,990.-	15,290.-

Caution! Prices do not include collector mounting and piping material (at additional cost).

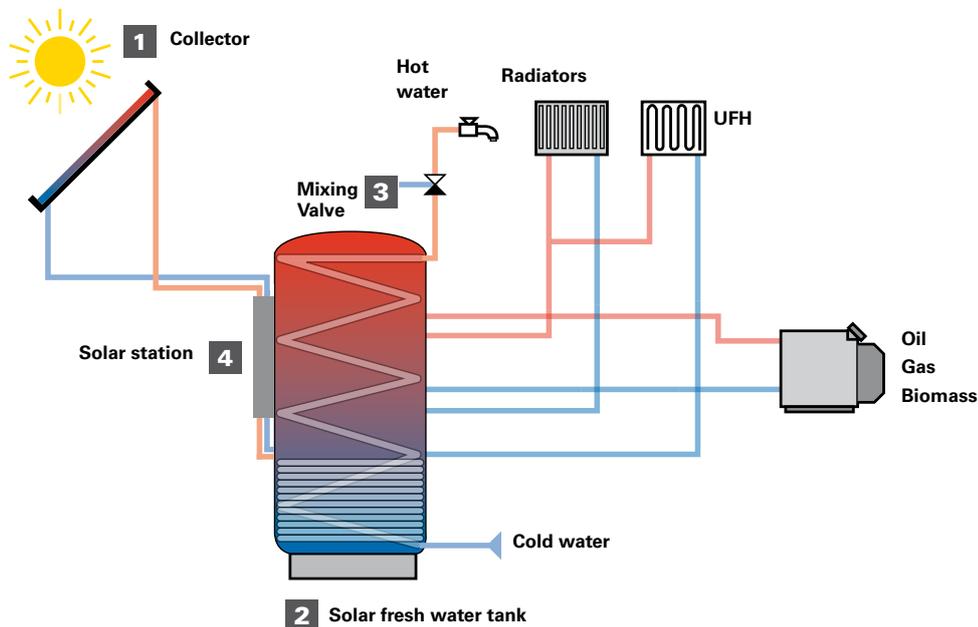
Accessories at additional cost

- Piping set – see page 16
- Boiler safety centre – see page 54

SHS SOLAR HEATING SET

MODULE COLLECTORS 2,55 AND SOLAR FRESH WATER TANK FS/1R

Fresh water tank functional diagram



Components



1 Module collector PFM-S 2,55 (vertical) or PFM-W 2,55 (horizontal)

- Easy installation of the collectors (Plug & Flow) and suitable for various attachment systems (in-roof, on-roof, parallel and freestanding installation).
- High degree of efficiency, proven by test certificates
- Very rugged and resistant construction



2 FS/1R solar fresh water tank, incl. insulation material

- Compact multi-functional solar tank system for domestic hot water and heating, including solar coil
- Solar heat exchanger in the lowest, cold zone with a very large surface area
- Hygienic domestic hot water heating, flowing through a special corrugated stainless steel pipe



3 Domestic hot water mixing valve BMV



4 SSR 25 solar station for wall and tank mounting

Dual-line solar station with Duplex system control unit, standard pump and flow sensor.

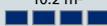
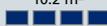
- Compact TiSUN EPP heat insulation jacket with integrated control unit
- Incl. solar expansion tank with corresponding connection set
- Incl. heat quantity meter using integrated VFS sensor
- Incl. gravity brake and bleeder in the solar forward flow

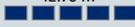
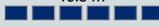
With heat metering



Frost protection fluid concentrate
Solar expansion vessel



Set	PF-SHS 10S/FS 500/SSR	PF-SHS 10W/FS 500/SSR	PF-SHS 10S/FS 800/SSR	PF-SHS 10W/FS 800/SSR	PF-SHS 12,5S/FS 800/SSR
Item no.	1321024	1321025	1321026	1321027	1321028
Dimensioning proposal / persons	Up to 4 persons	Up to 4 persons	Up to 5 persons	Up to 5 persons	Up to 6 persons
Collectors	4 x PFM - S 2,55 10.2 m ² 	4 x PFM - W 2,55 10.2 m ² 	4 x PFM - S 2,55 10.2 m ² 	4 x PFM - W 2,55 10.2 m ² 	5 x PFM - S 2,55 12.75 m ² 
Storage tank incl. insulation	FS 500/1R	FS 500/1R	FS 800/1R	FS 800/1R	FS 800/1R
Solar station	SSR 25	SSR 25	SSR 25	SSR 25	SSR 25
Expansion tank	SAG 33R	SAG 33R	SAG 33R	SAG 33R	SAG 33R
Heat quantity metering	✓	✓	✓	✓	✓
Frost protection concentrate	15 l	15 l	15 l	15 l	20 l
Domestic hot water mixer BMV	BMV34	BMV34	BMV34	BMV34	BMV34
Price	6,290.-	6,410.-	6,610.-	6,690.-	7,290.-

Set	PF-SHS 12,5W/FS 800/SSR	PF-SHS 12,5S/FS 1000S/SSR	PF-SHS 12,5W/FS 1000S/SSR	PF-SHS 15S/FS 1000S/SSR	PF-SHS 15W/FS 1000S/SSR
Item no.	1321029	1321030	1321031	1321032	1321033
Dimensioning proposal / persons	Up to 6 persons	Up to 6 persons	Up to 6 persons	Up to 7 persons	Up to 7 persons
Collectors	5 x PFM - W 2,55 12.75 m ² 	5 x PFM - S 2,55 12.75 m ² 	5 x PFM - W 2,55 12.75 m ² 	6 x PFM - S 2,55 15.3 m ² 	6 x PFM - W 2,55 15.3 m ² 
Storage tank incl. insulation	FS 800/1R	FS 1000S/1R	FS 1000S/1R	FS 1000S/1R	FS 1000S/1R
Solar station	SSR 25	SSR 25	SSR 25	SSR 25	SSR 25
Expansion tank	SAG 33R	SAG 33R	SAG 33R	SAG 50R (standing tank)	SAG 50R (standing tank)
Heat quantity metering	✓	✓	✓	✓	✓
Frost protection concentrate	20 l	20 l	20 l	20 l	20 l
Domestic hot water mixing valve BMV	BMV34	BMV34	BMV34	BMV34	BMV34
Price	7,450.-	7,490.-	7,640.-	8,310.-	8,490.-

 **Caution!** Prices do not include collector mounting and piping material (at additional cost).

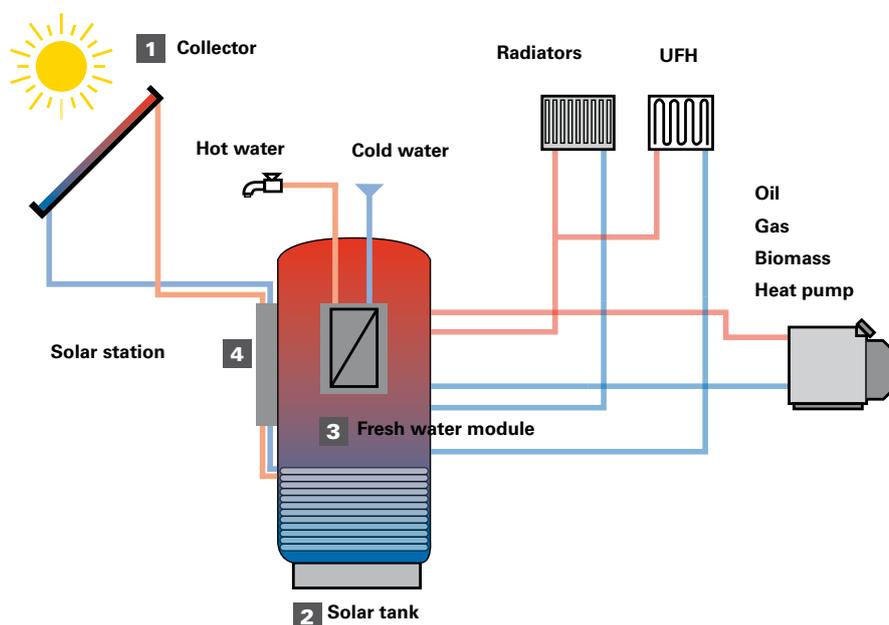
Accessories at additional cost

- Piping set – see page 16
- Boiler safety centre – see page 54

SHS SOLAR HEATING SET

MODULE COLLECTOR 2,55 AND SOLAR STRATIFIED TANK PS/1R WITH FRESH WATER MODULE

Functional diagram



Components



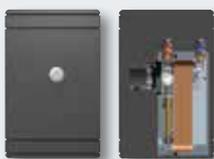
1 Modular collector PFM-S 2,55 (vertical) or PFM-W 2,55 (horizontal)

- Easy installation of the collectors (Plug & Flow) and suitable for various attachment systems (in-roof, on-roof, parallel and freestanding installation).
- High degree of efficiency, proven by test certificates
- Very rugged and resistant construction



2 PS/1R solar stratified tank

- Compact multi-functional solar tank system for domestic water and heating, including solar coil
- Solar heat exchanger in the lowest, cold zone with a very large surface area
- Possibility to install the solar and/or fresh water station



3 FWM fresh water module

- Compact fresh water module for hygienic water heating
- High tap quantities possible thanks to largely-dimensioned heat exchanger
- Quick-reacting temperature control prevents heat-caused calcification
- For tank and wall installation
- Optional circulation pump directly pluggable



4 SFR 25 solar station for wall or tank installation

Dual-line solar station with Simplex solar control unit, standard pump and flow meter.

- Compact TiSUN EPP heat insulation jacket with integrated control unit
- incl. solar expansion tank with corresponding connection set
- Optionally available heat quantity meter possible (with volume measuring instrument; not included in the set)

NEW



Frost protection fluid concentrate
Solar expansion tank



Set	PF-SHS 7,5S/PS 500/SFR	PF-SHS 7,5W/PS 500/SFR	PF-SHS 10S/PS 500/SFR	PF-SHS 10W/PS 500/SFR	PF-SHS 10S/PS 800/SFR	PF-SHS 10W/PS 800/SFR
Item no.	1321034	1321035	1321036	1321037	1321038	1321039
Dimensioning proposal	4 persons	4 persons	4 persons	4 persons	5 persons	5 persons
Collectors	3 × PFM-S 2,55 7,65 m ² 	3 × PFM-W 2,55 7,65 m ² 	4 × PFM-S 2,55 10,20 m ² 	4 × PFM-W 2,55 10,20 m ² 	4 × PFM-S 2,55 10,20 m ² 	4 × PFM-W 2,55 10,20 m ² 
Storage tank incl. insulation	PS 500 /1R	PS 500 /1R	PS 500 /1R	PS 500 /1R	PS 800 /1R	PS 800 /1R
Fresh water module	FWM 30	FWM 30	FWM 30	FWM 30	FWM 30	FWM 30
Solar station	SFR25	SFR25	SFR25	SFR25	SFR25	SFR25
Expansion tank	SAG 25R	SAG 25R	SAG 33R	SAG 33R	SAG 33R	SAG 33R
Frost protection concentrate	15 l	15 l	15 l	15 l	15 l	15 l
Price	6,490.-	6,580.-	6,990.-	7,120.-	7,290.-	7,410.-

Set	PF-SHS 12,5S/PS 800/SFR	PF-SHS 12,5W/PS 800/SFR	PF-SHS 12,5S/PS 1000S/SFR	PF-SHS 12,5W/PS 1000S/SFR	PF-SHS 15S/PS 1000S/SFR	PF-SHS 15W/PS 1000S/SFR
Item no.	1321040	1321041	1321042	1321043	1321044	1321045
Dimensioning proposal	5 persons	5 persons	6 persons	6 persons	7 persons	7 persons
Collectors	5 × PFM-S 2,55 12,75 m ² 	5 × PFM-W 2,55 12,75 m ² 	5 × PFM-S 2,55 12,75 m ² 	5 × PFM-W 2,55 12,75 m ² 	6 × PFM-S 2,55 15,30 m ² 	6 × PFM-W 2,55 15,30 m ² 
Storage tank incl. insulation	PS 800 /1R	PS 800 /1R	PS 1000S /1R	PS 1000S /1R	PS 1000S /1R	PS 1000S /1R
Fresh water module	FWM 30	FWM 30				
Solar station	SFR25	SFR25	SFR25	SFR25	SFR25	SFR25
Expansion tank	SAG 33R	SAG 33R	SAG 33R	SAG 33R	SAG 50R (standing tank)	SAG 50R (standing tank)
Frost protection concentrate	20 l	20 l				
Price	7,990.-	8,140.-	8,150.-	8,300.-	8,870.-	9,060.-

 **Caution!** Prices do not include collector mounting and piping material (at additional cost).

Accessories at additional cost

- Piping set – see page 16
- Boiler safety centre – see page 54

All prices in Euros (excluding VAT)

THERMOSIPHON SYSTEM

SIMPLE AND EFFICIENT HOT WATER PRODUCTION

The thermosiphon system covers hot water requirements of up to 500 litres per day and is distinguished by its quick set-up, low maintenance and high efficiency. Thermosiphon systems work according to the „gravity principle“ – heat rises. The heat transfer takes place through natural convection, without any pump or control unit. The solar fluid heated in the collector rises and transfers heat to the domestic water in the enamelled tank through a highly-efficient double jacket system. High-selectivity harp absorbers are used to guarantee the highest possible solar yield in this system.



Product description

Collector	Module flat-plate collector with anthracite-coloured aluminium frame (RAL 7016), laser-welded full-area absorber with a highly-selectivity coating.
Tank	Enamelled hot water tank with double jacket heat exchanger (two risers for solar charging and hot water output). Two integrated sacrificial magnesium anodes. Electrical secondary heating can be retrofitted.
Piping and accessories	Contains all necessary preinsulated pipes and fittings, safety valves and anti-freeze

Thermosiphon system

Type	Item no.	Gross area	No. of collectors	Tank volume	Weight	Price
THSY160 1H	1310005	2.09 m ²	1	145 l	170 kg	1,590.–
THSY200 1H	1310006	2.09 m ²	1	192 l	185 kg	1,790.–
THSY300 2H	1310008	4.18 m ²	2	282 l	270 kg	2,690.–

THERMOSIPHON SYSTEM ACCESSORIES



Service water mixing valve

Scald protection and constant-temperature service water tapping, temperature range 45°– 65 °C, Tmax. = 100 °C

Type	Item no.	Connection	Price
BMV 34	1510565	AG 1" mit Verschraubung 3/4"	76.–



Insulating material for domestic hot water mixing valve

EPP insulating material for BMV 34

Type	Item no.	Connection	Price
ISO BMV 34	1510574	Insulating material for BMV 34	15.–



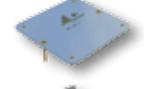
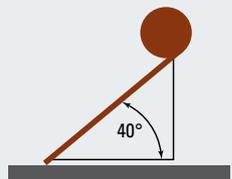
Electric screw-in heating element

High-quality stainless-steel immersion heater, suitable for the thermosiphon with thermostat control.

Type	Item no.	Connection	Price
THSY EH 1,5	1310009	Electric heating element for 1.5 kW thermosiphon system	61.–
THSY EH 2,5	1310010	Electric heating element for 2.55 kW thermosiphon system	61.–
THSY EH 3,5	1310011	Electric heating element for 3.5 kW thermosiphon system	61.–



Roof mounting material for thermosiphon system

Mounting type	Item no.	Price	No. of roof attachments			
			THSY 160 1H	THSY 200 1H	THSY 300 2H	
 Universal mounting duo hanger bolt	1430043	33.-	4	4	6	
 Rafter anchor for roof tiles, height-adjustable, height 40 - 60 mm	1430773	38.-	4	4	6	
 Joint clamp for tin joint roof	1430041	22.-	6	6	-	
 Solar bracket for side locks plates	1430032	57.-	4	4	6	
 Bitumen flange plate for bitumen roof, height 50 mm	1420644	39.-	4	4	6	
 Profiled sheet metal bracket for profiled sheet metal or corrugated sheet metal	1430039	57.-	6	6	-	Fill out data sheet when ordering (necessary for internal processing). Caution: not in stock!
 Corrugated cement asbestos calotte for 5 corrugations (5 corrugations/m)	1420074	23.-	6	6	-	Please fill in data sheet when ordering (required for internal processing). Caution: not in stock!
 Corrugated cement asbestos calotte for 8 corrugations (8 corrugations/m)	1420075	26.-	6	6	-	Fill out data sheet when ordering (necessary for internal processing). Caution: not in stock!
 Anchor bolt for concrete, galvanised, without height compensation	1410001	1.60	4	4	4	
 Anchor bolt for concrete, stainless steel, without height compensation (European Technical Approval ETA-05/0018)	1410535	4.80	4	4	4	



Simplex solar control unit

Solar controller for small to mid-sized solar and heating systems with heat metering, web-connection (module required), actuation of high-efficiency pumps, 10 preconfigured systems available for selection, automatic function check as per VDI guideline 2169.

Type	Item no.	Designation	Price
Simplex	1510658	Incl. 2 collector and 1 tank sensors	269.-



Duplex solar control unit

System controller for midsized to complex solar and heating systems with heat metering, web-connection (module required), LAN and mini-USB connections, actuation of high-efficiency pumps, 27 preconfigured systems available for selection, automatic function check as per VDI guideline 2169.

Type	Item no.	Designation	Price
Duplex	1510659	Incl. 2 collector and 2 tank sensors	369.-



Multiplex solar control unit

System controller for multi-tank and complex solar and heating systems, with heat quantity metering, web-connection (module required), actuation of high-efficiency pumps, numerous preconfigured systems (e.g. time-controlled thermostat function or thermal disinfection), automatic function check as per VDI guideline 2169, extendable with up to 2x Multiplex EM (equals 21 temperature inputs and 15 relay outputs).

Type	Item no.	Designation	Price
Multiplex	1510660	Incl. 2 collector and 4 tank sensors	439.-



Multiplex expansion module

Expansion module for multiplex, usable for all optional functions of the multiplex, has 5 additional relay outputs and 6 additional sensor inputs

Type	Item no.	Designation	Price
Multiplex EM	1510661	Incl. connection cable for multiplex connection	396.-



Webmodule AD

Additional module „Advanced“ records larger volumes of data (e.g. measurement and balance values of the solar system) over longer periods of time and offers the possibility of web access to 1 control unit.

Type	Item no.	Designation	Price
Webmodul AD	1510681	incl. SD card, LAN and VBus® cable, and RPT software	490.-



Webmodule EX

Additional module „Expert“ webmodule records larger volumes of data (e.g. measurement and balance values of the solar system) over longer periods of time and offers the possibility of web access up to 6 control units, 3 additional sensor inputs, BACnet functionality for BACnet-compliant data transmission

Type	Item no.	Designation	Price
Webmodul EX	1510682	incl. SD card, LAN and VBus® cable, and RPT software	915.-



Specifications for solar control units

Equipment	Simplex	Duplex	Multiplex
Number of collector sensors	2	2	2
Number of tank sensors	1	2	4
Max. number of collector arrays (*)	2	2	2
Max. number of tanks (*)	2	2	4
Ambient controlled heating circuits	-	-	✓
External heat exchanger	✓	✓	✓
Electronic speed control for standard pumps	✓	✓	✓
Electronic speed control for high-efficiency pumps by means of pulse-duration modulation	✓	✓	✓
Temperature sensor inputs	4	5	9 (21 ¹)
Sensor types	Pt1000, Pt500, KTY		
Inputs for flow sensors	-	✓	✓
Inputs for pressure sensors	-	-	✓
Inputs for radiation sensors	-	-	✓
Pulse inputs for flowrate measure device	✓	✓	✓
Total relay outputs	3	4	5 (15 ¹)
- Semiconductor relays (which are speed-controlled)	2	3	4
- Floating closer relays	1	1	1
Pulse-duration modulation outputs	2	2	2
- Of which 0-10 V switchable	2	2	2
Realtime clock	✓	✓	✓
Data interfaces	VBus®	"VBus®, MicroSD, LA-, Mi-iUSB"	VBus®, SD
Energy-efficient switching power supply	✓	✓	✓
Voltage supply	100 - 240V		
Languages for menu/instructions (**)	6 / 5	17 / 5	17 / 7

(*) System-dependent, (**) is continually expanded, (1) when used with EM





Surge protection for the collector sensor

Overvoltage protection for external installation; recommended in combination with collector sensors in order to contain indirect lightning strikes and other externally induced voltages.

Type	Item no.	Designation	Price
USK	1510662	Overvoltage protection, in a splash-proof housing	31.-



Ambient temperature sensor

Ambient temperature sensor with Pt1000 measurement element for heating circuit control, splash-proof housing for outside installation

Type	Item no.	Designation	Price
ATS	1510663	Outside temperature sensor, in a splash-proof housing	36.-



Remote control unit

The remote control unit serves to conveniently adjust the heating curve from the living area, integrated temperature sensor detects room temperature

Type	Item no.	Designation	Price
FVH	1510665	For raising / lowering the heating curve	57.-



Solar cell

The solar cell serves to detect the current solar radiation intensity, can be used as additional plausibility check or with direct control management

Type	Item no.	Designation	Price
SZ	1510704	Connection line extendable up to 100 m	114.-



Auxiliary relay

Auxiliary relay for isolating different power circuits; switching power 16 A

Type	Item no.	Designation	Price
HR 16A	1510705	Switching power 16 A / 240 V, floating on/off switch contact	55.-



Flowrate measure device V40 for heat metering

Measuring device with contact transmitter for measuring the flowrate of water or water-glycol mixtures

Type	Item no.	Designation	Price
V40-0,6	1510734	Nominal flow rate 0.6 m ³ /h	252.-
V40-1,5	1510735	Nominal flow rate 1.5 m ³ /h	274.-
V40-2,5	1510736	Nominal flow rate 2.55 m ³ /h	437.-

 **Note:** Other controlling accessories available on request



Specifications for solar stations

Equipment	SFE 25	SFRE 25	SFEH 25	SFREH 25
Single-line station	✓	✓	✓	✓
Dual-line station	-	-	-	-
Expansion station	-	-	-	-
Simplex control unit	-	✓	-	✓
Duplex control unit	-	-	-	-
Wilo Star STG 15/6 pump	✓	✓	-	-
WiloYonos Para ST 15/7.0 PWM2 pump	-	-	✓	✓
WiloYonos Para ST 15/7.5 PWM2 pump	-	-	-	-
Wilo Stratos Para 25/1-11 PWM2 pump	-	-	-	-
Safety group, 10 bar	✓	✓	✓	✓
Integrated air separator	-	-	-	-
Flow meter	✓	✓	✓	✓
Flow sensor	-	-	-	-
Heat quantity metering	-	-	-	-
Storage installation	✓	✓	✓	✓



Gravity brake for solar forward flow

Solar station with flow meter

Solar station with flow meter and control unit

Type	SBV 22
Item no.	1510414
Connection	DN 20 (compression connection for Cu 22)
Designation	Gravity brake for single-line solar station, for installation in solar forward flow
Price	47.-

Type	SFE 25
Item no.	1510666
Connection	DN 20 (compression connection for Cu 22)
Designation	Single-line solar station without solar control unit, up to max. 25 m ² Collector surface with standard pump and flow meter
Price	409.-

Type	SFRE 25
Item no.	1510667
Connection	DN 20 (compression connection for Cu 22)
Designation	Single-line solar station with SIMPLEX solar control unit, up to max. 25 m ² collector surface area, with standard pump and flow meter
Price	677.-



Solar station HE with flow meter

Solar station HE with flow meter and control unit

Type	SFEH25
Item no.	1510668
Connection	DN 20 (compression connection for Cu 22)
Designation	Single-line solar station without solar control unit, up to max. 25 m ² Collector surface with high-efficiency pump and flow meter
Price	609.-

Type	SFREH25
Item no.	1510669
Connection	DN 20 (compression connection for Cu 22)
Designation	Single-line solar station with SIMPLEX solar control unit, up to max. 25 m ² collector surface area, with high-efficiency pump and flow meter
Price	859.-

! **Note:** Collector surface area specifications are based on TiSUN-specific product data and serve for orientation purposes, under no circumstances do they replace a detailed pressure loss calculation. To select the appropriate station, see the diagram in the technical catalogue.

Specifications for solar stations

Equipment	SF 25	SFR 25	SFH 25	SFH 50
Single-line station	-	-	-	-
Dual-line station	✓	✓	✓	✓
Expansion station	-	-	-	-
Simplex control unit	-	✓	-	-
Duplex control unit	-	-	-	-
Wilo Star STG 15/6 pump	✓	✓	-	-
Wilo Yonos Para ST 15/7.0 PWM2 pump	-	-	✓	-
Wilo Yonos Para ST 15/7.5 PWM2 pump	-	-	-	✓
Wilo Stratos Para 25/1-11 PWM2 pump	-	-	-	-
Safety group, 10 bar	✓	✓	✓	✓
Integrated air separator	✓	✓	✓	✓
Flow meter	✓	✓	✓	✓
Flow sensor	-	-	-	-
Heat quantity metering	-	-	-	-
Storage installation	✓	✓	✓	✓



Solar station with flow meter

Type	SF 25
Item no.	1510670
Connection	DN 20 (compression connection for Cu 22)
Designation	Dual-line solar station without solar control unit, up to max. 25 m ² collector surface area with standard pump and flow meter
Price	489.-

Solar station with flow meter and control unit

Type	SFR 25
Item no.	1510671
Connection	DN 20 (compression connection for Cu 22)
Designation	Dual-line solar station with SIMPLEX solar control unit, up to max. 25 m ² collector surface area, with standard pump and flow meter
Price	749.-



Solar station HE with flow meter

Type	SFH 25	SFH 50
Item no.	1510672	1510673
Connection	DN 20 (compression connection for Cu 22)	DN 20 (compression connection for Cu 22)
Designation	dual-line solar station with solar control unit, up to max. 25 m ² collector surface area, with high-efficiency pump and flow meter	Dual-line solar station with solar control unit, up to max. 50 m ² collector surface area, with high-efficiency pump and flow meter
Price	679.-	739.-



Note: Collector surface area specifications are based on TISUN-specific product data and serve for orientation purposes, under no circumstances do they replace a detailed pressure loss calculation. To select the appropriate station, see the diagram in the technical catalogue.

Specifications for solar stations

Equipment	SSR 25	SSRH 25	SSRH 50	SSRH 100	SES 25	SESH 25
Single-line station	-	-	-	-	✓	✓
Dual-line station	✓	✓	✓	✓	-	-
Expansion station	-	-	-	-	✓	✓
Simplex control unit	-	-	-	-	-	-
Duplex control unit	✓	✓	✓	✓	-	-
Wilo Star STG 15/6 pump	✓	-	-	-	✓	-
WiloYonos Para ST 15/7.0 PWM2 pump	-	✓	-	-	-	✓
WiloYonos Para ST 15/7.5 PWM2 pump	-	-	✓	-	-	-
Wilo Stratos Para 25/1-11 PWM2 pump	-	-	-	✓	-	-
Safety group, 10 bar	✓	✓	✓	✓	-	-
Integrated air separator	✓	✓	✓	✓	-	-
Flow meter	-	-	-	-	-	-
Flow sensor	✓	✓	✓	✓	✓	✓
Heat quantity metering	y	y	y	y	-	-
Storage installation	✓	✓	✓	-	-	-



Solar station with sensor and control unit

Type	SSR 25
Item no.	1510674
Connection	DN 20 (compression connection for Cu 22)
Designation	Dual-line solar station with Duplex solar control unit, up to max. 25 m ² collector surface area, with standard pump and flow meter
Price	915.-

Solarstation HE mit Sensor und Regelung

Type	SSRH 25	SSRH 50	SSRH 100
Item no.	1510675	1510676	1510677
Connection	DN 20 (compression connection for Cu 22)	DN 20 (compression connection for Cu 22)	DN 25 (compression connection for Cu 28)
Designation	Dual-line solar station with DUPLEX solar control unit, up to max. 25 m ² collector surface area, with high-efficiency pump and flow sensor	Dual-line solar station with DUPLEX solar control unit, up to max. 50 m ² collector surface area, with high-efficiency pump and flow sensor	Dual-line solar station with DUPLEX solar control unit, up to max. 100 m ² collector surface area, with high-efficiency pump and flow sensor
Price	1,208.-	1,268.-	2,240.-



Expansion module for solar station with sensor

Type	SES25
Item no.	1510678
Connection	DN 20 (compression connection for Cu 22)
Designation	Expansion module for solar station (single-line or dual-line) up to 25 m ² collector surface area, with standard pump and flow sensor, without safety group
Price	495.-

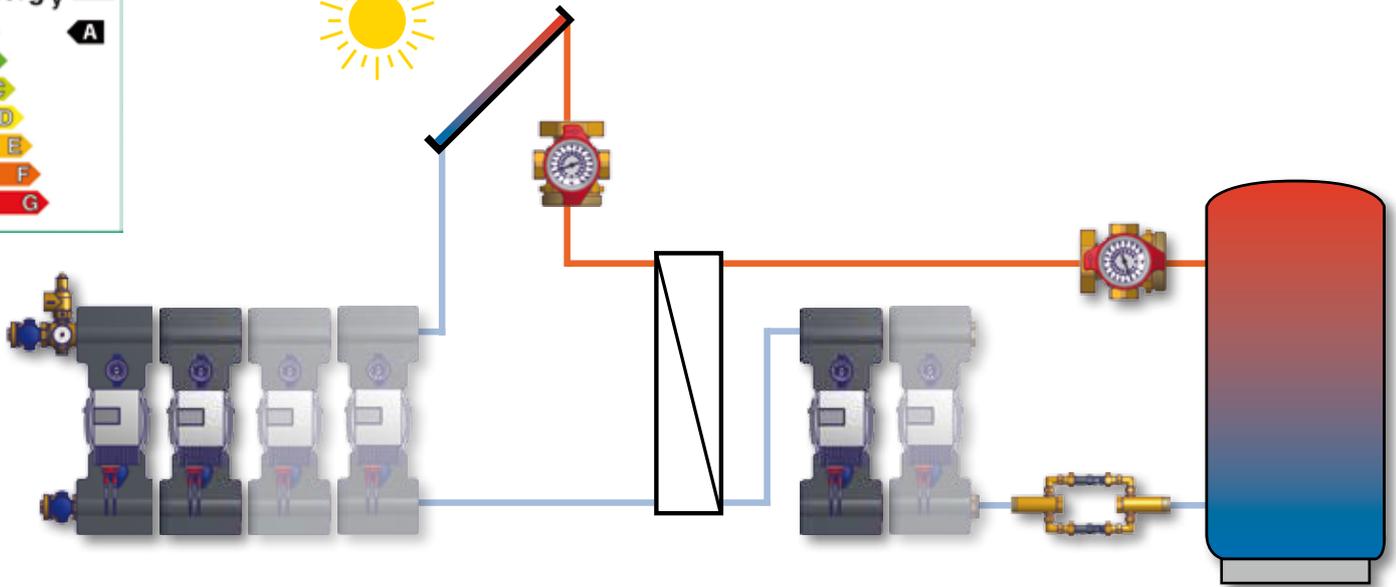
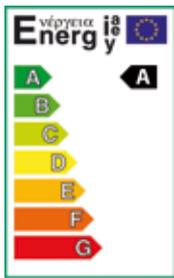


Expansion module HE for solar station with sensor

Type	SESH25
Item no.	1510679
Connection	DN 20 (compression connection for Cu 22)
Designation	Expansion module for solar station (single-line or dual-line) up to 25 m ² collector surface area, with high-efficiency pump and flow sensor, without safety group
Price	765.-

! Note: Collector surface area specifications are based on TiSUN-specific product data and serve for orientation purposes, under no circumstances do they replace a detailed pressure loss calculation. To select the appropriate station, see the diagram in the technical catalogue.

SOLAR STATIONS



Solar stations for large-scale systems of 150 m² to 600 m², modular, with high-efficiency pump

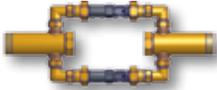
Cascadable solar stations for large-scale systems in ready-to-install modular design, consisting of basic module SG-GM 150 H and expansion modules SG-EM 150 H. The modules are preassembled, insulated and premounted on 2" pipe manifolds.

Pump types: Wilo Stratos Para 30/1-12 PWM2 pump

Type	Item no.	Connections	Designation	Price
SG-GM 150 H	1510568	DN50 (2")	Solar stations for large-scale systems of 100 m ² to 150 m ² collector surface area with high-efficiency pump and safety group, modularly expandable with up to three SG-EM 150 H for up to 600 m ² collector surface area, without solar control unit	2,325.-
SG-EM 150 H	1510569	DN50 (2")	Expansion module for SG-GM 150 H for 150 m ² collector surface area, with high-efficiency pump, without safety group, without solar control unit	2,055.-

Sensor module for large-scale systems (flow, pressure, temperature)

2" sensor module for measuring flow, pressure and temperature, for system monitoring and heat quantity metering.



Type	Item no.	Connections	Designation	Price
SM-DDT	1510431	DN50 (2")	Sensor module for flow, pressure, temperature	1,190.-

Gravity brake for solar forward flow



Type	Item no.	Connections	Designation	Price
SBV 2	1510476	DN50 (2")	Gravity brake for SG-GM 150 H	225.-





Flow sensors for TiSUN® solar control units (heat metering)

Flow sensor without moving parts and with integrated temperature measurement for liquid media, complete with flow measuring section and brass fittings, without connecting cable. Suitable for heat metering in combination with TiSUN® Duplex/Multiplex solar control units.

Type	Item no.	Flow measuring range	Connection	Price
VFS 1-12 QT	1510714	1 – 12 l/min	AG G 3/4"	252.-
VFS 2-40 QT	1510715	2 – 40 l/min	AG G 3/4"	253.-
VFS 5-100 QT	1510716	5 – 100 l/min	AG G 3/4"	350.-

Note: Larger sensors available on request

Connecting cable with Molex connector for VFS

Type	Item no.	Designation	Price
AK-VFS 29	1510719	Length 2.9 m	23.-



Pressure sensor for TiSUN® solar control units

The RPS pressure sensor is a combination of pressure and temperature sensor suitable for liquid media. Robustness thanks to corrosion-resistant sensor coating. For use in combination with TiSUN® Duplex/Multiplex solar control units.

Type	Item no.	Pressure measurement range	Connection	Price
RPS 0-10	1510482	0 – 10 bar	AG G 1/2"	94.-



SOLAR STATION ACCESSORIES



Solar expansion tank

Cylindrical expansion tank, with membrane up to max. temperature +99 °C.

Type	Item no.	Collector surface area	Contents	Connection	Price
SAG 12R NEW	1510733	up to 4 m ²	12 l	G 3/4"	63.-
SAG 18R	1510040	up to 6 m ²	18 l	G 3/4"	71.-
SAG 25R	1510041	up to 10 m ²	25 l	G 3/4"	82.-
SAG 33R	1510042	up to 15 m ²	33 l	G 3/4"	105.-
SAG 50R*	1510334	up to 20 m ²	50 l	G 3/4"	225.-
SAG 80R*	1510044	up to 30 m ²	80 l	R 1"	230.-
SAG 100R*	1510045	up to 40 m ²	100 l	R 1"	285.-
SAG 140R*	1510046	up to 50 m ²	140 l	R 1"	460.-
SAG 200R*	1510047	up to 70 m ²	200 l	R 1"	510.-
SAG 300R*	1510049	up to 125 m ²	300 l	R 1"	625.-
SAG 500R*	1510051	up to 200 m ²	500 l	R 1"	1,040.-

* Standing tank version



Note: Solar tanks are supplied with approx. 5 bar initial pressure and must be adjusted to suit the system.



Connection set for solar expansion tanks

Corrugated stainless steel pipe incl. threaded connections and quick coupling, up to 33 l, incl. wall mount

Type	Item no.	Designation	Price
AS-SAG 34	1510315	Connecting set 3/4", 0.5 m for expansion tanks to 33 l, DN 15 (including wall mount)	41.-
AS-SAG 34 2m H	1510494	Connecting set 3/4", 2 m for expansion tanks to 33 l, DN 15 (including wall mount)	110.-
AS-SAG 34 2m	1510341	Connecting set 3/4", 2 m length, for expansion tanks to 50 l, DN 15	74.-
AS-SAG 1	1510316	Connecting set 3/1", 2 m length, for expansion tanks to 80 l, DN 20	123.-



Connection set between solar station and tank

For connecting all single-line or dual-line stations, 25 or 50 m², to the tank types FS/1R, PS/1R and BE-SSP-2R, when mounting the station directly on the tank.

Type	Item no.	Connection	Designation	Price
AS-SS 25-50	1510724	1" / 22 mm	Incl. 2x corrugated pipe with insulation, as well as connecting and sealing material	105.-

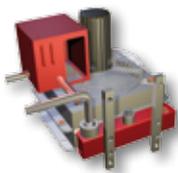




Fresh water station for large-scale installations

Fresh water station especially for hygienic drinking water preparation in large-scale systems, with standard-series circulation pump and pre-mixing valve integrated as standard (prevention of thermal-related calcination).

Type	Item no.	Max. tap output	Designation	Price
FWSG 150	1510495	40 °C - 150 l/min 55 °C - 100 l/min	Fresh water station for large-scale systems with calcination protection, circulation pump and control unit	10,500.-
FWSG 225	1510496	40 °C - 225 l/min 55 °C - 150 l/min	Fresh water station for large-scale systems with calcination protection, circulation pump and control unit	12,100.-



Anti-stagnation unit with 3-way motor switch valve

Ready-to-install anti-stagnation unit for collector surface areas of up to 150 m², consisting of solar fluid cooler, electric ventilator and 3-way valve.

Type	Item no.	Collector surface area	Designation	Price
ASE 150	1510418	150 m ²	Anti-stagnation unit for collector surface areas of up to 150 m ² , cascadable, 3 x 400 V	5,050.-

⚠ Note: This system is mainly used in southern countries with intense solar radiation.



Swimming pool charging station

Ready-to-install swimming pool charging station consisting of stainless steel plate heat exchanger, on the solar system side 2 connections with shutoff valves, 2 sensor thimbles for pump control and overheating protection of the plastic swimming pool pipes. On the swimming pool side, 2 stainless steel connections with shutoff valves.

Type	Item no.	Designation	Price
SBL 20	1510419	Up to 20 m ² collector surface area	1,895.-
SBL 50	1510420	Up to 50 m ² collector surface area	1,990.-
SBL 100	1510421	Up to 100 m ² collector surface area	2,990.-

Tank pump unit

The universal secondary pump group for black water consists of an high-efficiency pump Wilo Yonos Para ST 25/7.0 PWM2, multifunctional ball valve with integrated thermometer, 2nd ball valve and flat seals, pre-insulated in EPP heat insulation jacket



Type	Item no.	Suitable for piping	Designation	Price
SLEH 60 PWM	1510624	IG 1"	Tank pump unit with high-efficiency pump	545.-

SOLAR ACCESSORIES

3-way diverter valve with 230 V motor for heating and solar system



Type	Item no.	Connection	Price
3WW 34	1510241	IG 3/4"	131.-
3WW 1	1510242	IG 1"	135.-
3WW 54	1510243	IG 5/4"	155.-

3-way diverter valve with 230 V motor for large-scale systems (heating and solar)



Type	Item no.	Connection	Price
3WW 64	1510436	IG 6/4"	360.-
3WW 2	1510437	IG 2"	395.-

Service water mixing valve

Scald protection and constant-temperature service water tapping, temperature range 45 °- 65 °C, Tmax. = 100 °C



Type	Item no.	Connection	Price
BMV 34	1510565	1" male thread with 3/4" screw connection	76.-
BMV 1	1510566	5/4" male thread with 1" threaded connection	119.-

Insulation material for domestic hot water mixing valve

EPP insulation for BMV 34 and BMV 1



Type	Item no.	Designation	Price
ISO BMV 34	1510574	Insulation material for BMV 34	15.-
ISO BMV 1	1510575	Insulation material for BMV 1	15.-

Vent with Autoclose

Automatic air separator with autoclose system. Can be installed near collector (horizontally only). Vent closes automatically starting at 90 °C. Temperature max. up to 180 °C, pressure max. 10 bar.



Type	Item no.	Connection	Designation	Price
EA	1510417	IG 1/2"	Vent with autoclose	185.-

Microbubble separator with Autoclose

Automatic microbubble separator with Autoclose system. Can be installed near collector (horizontally only). Vent closes automatically starting at 90 °C. Temperature max. up to 180 °C, pressure max. 10 bar. Included in the delivery are 2x compression fittings (22 mm), 2x support sleeves for 22 mm copper pipes and 1x sealing cap.



Type	Item no.	Connection	Designation	Price
KE-HA	1510468	22 mm	Microbubble separator with Autoclose	239.-
KE-HA-V	1510492	18 mm	Microbubble separator with Autoclose (Incl. 2x reduction-threaded connectors 22 / 18 mm)	250.-

Line regulator valve

High-temperature bypass Taco setter for regulating and shutting off collector arrays of different sizes.



Type	Item no.	Connection	DN	Measuring range	kvs (m³/h)	Price
TCS 2-12I	1510296	IG 3/4"	20	2-12 l/min	2.2	188.-
TCS 8-30I	1510297	IG 3/4"	20	8-30 l/min	5.0	188.-
TCS 10-40I	1510298	IG 1"	25	10-40 l/min	8.1	199.-
TCS 20-70I	1510299	IG 1 1/4"	32	20-70 l/min	17.0	229.-

Insulation material for line regulation valve

EPP insulating material, not UV-resistant



Type	Item no.	Designation	Price
ISO TCS 20	1510571	Insulating material for TCS 2-12I and TCS 8-30I (DN20)	12.-
ISO TCS 25	1510572	Insulating material for TCS 10-40I (DN 25)	13.-
ISO TCS 32	1510573	Insulating material for TCS 20-70 I (DN 32)	14.-

Frost protection and heat transfer fluid

The antifreeze fluid prevents frost damage in the solar system while at the same time protecting against corrosion. The fluid is biodegradable, food safe and does not corrode the standard sealing material used in heating systems. Tested according to ASTM and classified in accordance with directive (EU) no. 453/2010.



Type	Item no.	Designation	Packing drum	Frost protection	Price/l
FWF-K 5	1510726	concentrate	5 l	As per the table	8.25
FWF-K 10	1510727	concentrate	10 l	As per the table	7.80
FWF-K 24	1510728	concentrate	24 l	As per the table	7.20
FWF-F	1510729	Ready-mixed anti-freeze agent for temperatures to -28 °C	24 l	Up to -28 °C	4.40

Evaporation-proof frost protection and heat transfer fluid

For collectors with high thermal load due to stagnation

Type	Item no.	Designation	Packing drum	Frost protection	Price/l
FWF-VSF	1510730	Ready-mix	24 l	Up to -24 °C	6.45

Note: FWF-VSF must not be mixed with other heat transfer fluids or water!



Solar filling and flushing pump

The pump allows quick and clean filling and flushing of solar systems with heat transfer fluid.

The compact unit consists of trolley, 50 l container, pump and hoses; max. fluid temperature +80 °C

Type	Item no.	Application	Price
SFP-70	1510542	Up to 70 l/min.	965.-

Solar check case

The solar case is used for start-up and annual checks of solar systems. It contains test and information labels, a refractometer for measuring the concentration of the frost protection, pH measuring strips, inclinometer, compass, pressure gauge and an acceptance protocol.



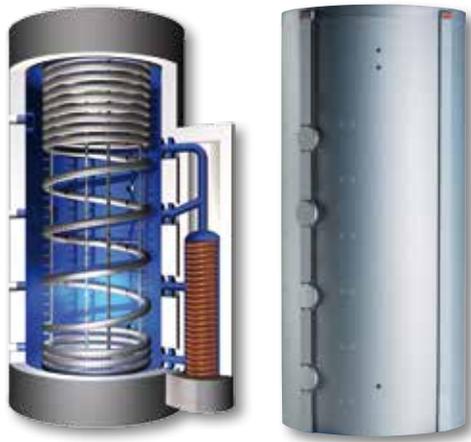
Type	Item no.	Application	Price
SC	1510063	Solar check case	335.-

Re-order

SC-pH	1510068	pH measuring strips	84 strips	24.-
SC-PP	1510069	Testing label	12 pc.	16.-
SC-HP	1510071	Information label	12 pc.	16.-
SC-RM	1510070	Refractometer	1 pc.	175.-



PC PRO-CLEAN® STRATIFIED TANK



NEW

- New item numbers!
- 5 immersion sleeves included (pre-installed) for 3 sensors each

Pro-Clean® stratified tank with spherical exchanger connection for service water and heating

Multi-functional stratified tank system (in combination with a spherical exchanger) made of S 235 JR steel for domestic water and heating. Backup tank with optimum stratified charging without tank mixing, with integrated hygienic water heating using a continuous heating process with stainless steel corrugated pipe (1.4404) and inflow absorbers for optimum retention of the stratification (incl. dummy flange plate, starting with 1,500 l). Extendable with the PS backup tank.

Pro-Clean® stratified tank with spherical exchanger connection

General information: max. tank operating pressure: 3 bar/max. Corrugated pipe operating pressure: 6 bar/max. Temp. 110 °C

Type	PC 500	PC 800	PC 1000B	PC 1000S	PC 1250	PC 1500	PC 2000	PC 2500	PC 3000*	PC 4000*	PC 5000*
Item no.	1610921	1610922	1610923	1610924	1610925	1610926	1610927	1610928	1610929	1610930	1610931
Tank volume	514 l	744 l	971 l	930 l	1.246 l	1.496 l	1.889 l	2.430 l	2.910 l	3.920 l	4.950 l
Total height with insulation ¹	1860 mm	2010 mm	2050 mm	2220 mm	2300 mm	2290 mm	2380 mm	2270 mm	2770 mm	2400 mm	2910 mm
Ø with insulation ¹	850 mm	950 mm	1050 mm	990 mm	1100 mm	1200 mm	1300 mm	1500 mm	1470 mm	1820 mm	1820 mm
Ø without insulation ¹	650 mm	750 mm	850 mm	790 mm	900 mm	1000 mm	1100 mm	1300 mm	1250 mm	1600 mm	1600 mm
Tilt height ¹	1820 mm	1975 mm	2020 mm	2185 mm	2270 mm	2280 mm	2380 mm	2350 mm	2780 mm	2520 mm	3020 mm
Surface area of stainless steel corrugated pipe	6.45 m ²	7.74 m ²	7.74 m ²	7.74 m ²	7.74 m ²	9.03 m ²	9.03 m ²	10.32 m ²	10.32 m ²	10.32 m ²	10.32 m ²
Weight	154 kg	184 kg	207 kg	214 kg	246 kg	292 kg	330 kg	488 kg	458 kg	550 kg	734 kg
Price	1,860.-	2,080.-	2,215.-	2,205.-	2,675.-	3,220.-	3,955.-	4,240.-	4,575.-	6,345.-	6,935.-

! *Not held in stock (delivery time approx. 6 to 8 weeks)

¹ All size specifications have a tolerance range of +/- 3%.

Note: Details for spherical exchanger bzw. blind flange plate and insulation are on the following pages.

NEW! Continuous cable duct included (in area of the sensor sleeves)

Insulation with cable duct for Pro-Clean® stratified tanks

Three-part polyester fibre fleece insulation ($\lambda = 0.035 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Best heat insulation properties guaranteed, insulation fire resistance class B1, CFC-free and 100 % recyclable.

Type	ISOVS PCH 500	ISOVS PCH 800	ISOVS PCH 1000B	ISOVS PCH 1000S	ISOVS PCH 1250	ISOVS PCH 1500	ISOVS PCH 2000	ISOVS PCH 2500	ISOVS PCH 3000*	ISOVS PCH 4000*	ISOVS PCH 5000*
Item no.	1610950	1610951	1610952	1610953	1610954	1610955	1610956	1610957	1610958	1610959	1610960
Insulation thickness ²	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	110 mm	110 mm	110 mm
Price	520.-	710.-	812.-	815.-	970.-	1,095.-	1,205.-	1,370.-	1,630.-	1,750.-	2,680.-

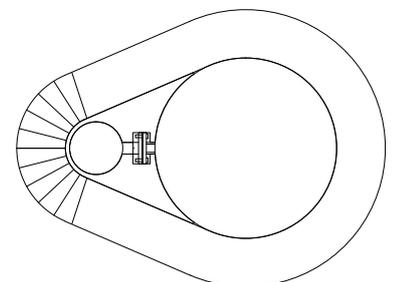
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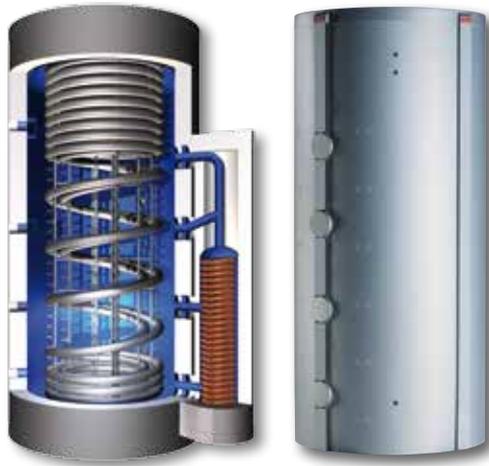
¹ All size specifications have a tolerance range of +/- 3%.

Polyester fibre fleece insulation 200 mm for Pro-Clean® stratified tanks

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Best heat insulation properties guaranteed, insulation fire resistance class B2, CFC-free and 100 % recyclable.

Type	ISOVL 200 PCH 800	ISOVL 200 PCH 1000S
Item no.	1610793	1610794
Insulation thickness ¹	200 mm	200 mm
Price	1.470.-	1.550.-





• New item numbers!
• 5 immersion sleeves included (pre-installed) for 3 sensors each

Pro-Clean® stratified tank with spherical exchanger connection and 2 corrugated pipes

Multi-functional stratified tank system (in combination with a spherical exchanger) made of S 235 JR steel for domestic water and heating. Backup tank with optimum stratified charging, without tank mixing, with integrated hygienic water heating using a continuous heating process with stainless steel corrugated pipe (1.4404) and inflow absorbers for optimum retention of the stratification (incl. dummy flange plate, starting with 1,500 l). Extendable with the PS backup tank.

Pro-Clean® stratified tank with spherical exchanger connection and 2 corrugated pipes

General information: max. Temp. 110 °C, max. operating pressure: 3 bar, max. operating pressure corrugated pipe: 6 bar

Type	PC 2WR 1250	PC 2WR 1500	PC 2WR 2000	PC 2WR 2500*	PC 2WR 3000*	PC 2WR 4000*	PC 2WR 5000*
Item no.	1610932	1610933	1610934	1610935	1610936	1610937	1610938
Tank volume	1246 l	1496 l	1889 l	2430 l	2910 l	3920 l	4950 l
Overall height with insulation ¹	2300 mm	2290 mm	2380 mm	2270 mm	2770 mm	2400 mm	2910 mm
Ø with insulation ¹	1100 mm	1200 mm	1300 mm	1500 mm	1470 mm	1820 mm	1820 mm
Ø without insulation ¹	900 mm	1000 mm	1100 mm	1300 mm	1250 mm	1600 mm	1600 mm
Tilt height ¹	2270 mm	2280 mm	2380 mm	2350 mm	2780 mm	2520 mm	3020 mm
Surface area of stainless steel corrugated pipe	15.5 m ²	15.5 m ²	18.1 m ²	20.6 m ²	20.6 m ²	20.6 m ²	20.6 m ²
Weight	277 kg	334 kg	370 kg	532 kg	493 kg	585 kg	778 kg
Price	3,360.-	4,160.-	4,650.-	5,540.-	5,745.-	7,590.-	7,795.-

⚠ *Not held in stock (delivery time approx. 6 to 8 weeks)

¹ All size specifications have a tolerance range of +/- 3 %.

Note: Details for spherical exchanger bzw. blind flange plate and insulation are on the following pages.

Insulation with calbe duct for Pro-Clean® stratified tanks, with 2 corrugated pipes

NEW! Continuous cable duct included (in area of sensor sleevesature sensor)

Three-part polyester fibre fleece insulation ($\lambda = 0.035 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Guarantees the best thermal properties, insulation fire resistance class B2, CFC-free and 100 % recyclable.

Type	ISOVS PC 2W 1250	ISOVS PC 2W 1500	ISOVS PC 2W 2000	ISOVS PC 2W 2500*	ISOVS PC 2W 3000*	ISOVS PC 2W 4000*	ISOVS PC 2W 5000*
Item no.	1610961	1610962	1610963	1610964	1610965	1610966	1610967
Insulation thickness ¹	100 mm	100 mm	100 mm	100 mm	110 mm	110 mm	110 mm
Price	995.-	1,135.-	1,235.-	1,405.-	1,665.-	1,795.-	2,705.-

⚠ *Not held in stock (delivery time approx. 6 to 8 weeks)

¹ All size specifications have a tolerance range of +/- 3 %.





▪ New item numbers!
▪ 5 immersion sleeves included (pre-installed) for 3 sensors each

Pro-Heat stratified tank with spherical exchanger connection for heating systems

Pro-Heat stratified tank with spherical exchanger for heating systems. Multi-functional stratified tank system (in combination with a spherical exchanger) made of S 235 JR steel for domestic water and heating. Backup tank with optimum stratified charging without tank mixing with inflow absorbers for optimum retention of the stratification (incl. dummy flange plate, starting with 1500 l). Extendable with the PS backup tank.

Pro-Heat stratified tank with spherical exchanger connection for heating systems*

max. temp. 110°C, max. operating pressure tank: 3 bar

Type	PH 500	PH 800	PH 1000B	PH 1000S	PH 1250	PH 1500	PH 2000	PH 2500	PH 3000	PH 4000	PH 5000
Item no.	1610939	1610940	1610941	1610942	1610943	1610944	1610945	1610946	1610947	1610948	1610949
Tank volume	514 l	744 l	971 l	930 l	1.246 l	1.496 l	1.889 l	2.430 l	2.910 l	3.920 l	4.950 l
Overall height with insulation ¹	1860 mm	2010 mm	2050 mm	2220 mm	2300 mm	2290 mm	2380 mm	2270 mm	2770 mm	2400 mm	2910 mm
Ø with insulation ¹	850 mm	950 mm	1050 mm	990 mm	1100 mm	1200 mm	1300 mm	1500 mm	1470 mm	1820 mm	1820 mm
Ø without insulation ¹	650 mm	750 mm	850 mm	790 mm	900 mm	1000 mm	1100 mm	1300 mm	1250 mm	1600 mm	1600 mm
Tilt height ¹	1820 mm	1975 mm	2020 mm	2185 mm	2270 mm	2280 mm	2380 mm	2350 mm	2780 mm	2520 mm	3020 mm
Weight	130 kg	155 kg	178 kg	182 kg	217 kg	254 kg	291 kg	444 kg	365 kg	420 kg	690 kg
Price	982.-	1,070.-	1,215.-	1,250.-	1,530.-	1,750.-	2,112.-	2,750.-	3,256.-	4.895.-	5.710.-

⚠ *Not held in stock (delivery time approx. 6 to 8 weeks)
¹ All size specifications have a tolerance range of +/- 3%.
Note: Details for spherical exchanger bzw. blind flange plate and insulation are on the following pages.

NEW! Continuous cable duct included

Insulation with cable duct for Pro-Heat stratified tanks*

Three-part polyester fibre fleece insulation ($\lambda = 0.035 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Guarantees the best thermal properties, insulation fire resistance class B2, CFC-free and 100 % recyclable.

Type	ISOVS PCH 500	ISOVS PCH 800	ISOVS PCH 1000B	ISOVS PCH 1000S	ISOVS PCH 1250	ISOVS PCH 1500	ISOVS PCH 2000	ISOVS PCH 2500	ISOVS PCH 3000	ISOVS PCH 4000	ISOVS PCH 5000
Item no.	1610950	1610951	1610952	1610953	1610954	1610955	1610956	1610957	1610958	1610959	1610960
Insulation thickness ¹	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	110 mm	110 mm	110 mm
Price	520.-	710.-	812.-	815.-	970.-	1,095.-	1,205.-	1,370.-	1,630.-	1,750.-	2,680.-

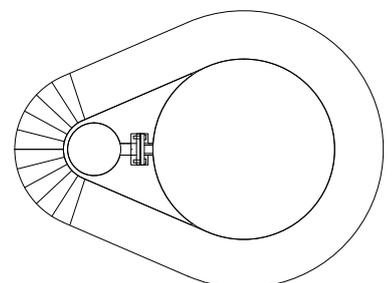
⚠ *Not held in stock (delivery time approx. 6 to 8 weeks)
¹ All size specifications have a tolerance range of +/- 3%.

Polyester fibre fleece insulation 200 mm for Pro-Heat stratified tank

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Best heat insulation properties guaranteed, insulation fire resistance class B2, CFC-free and 100 % recyclable.



Type	ISOVL 200 PCH 800	ISOVL 200 PCH 1000S
Item no.	1610793	1610794
Insulation thickness ¹	200 mm	200 mm
Price	1.470.-	1.550.-





Spherical exchanger for solar stratified charging suitable for Pro-Clean® and Pro-Heat stratified tank

Max. spherical exchanger pressure 10 bar, max. spherical exchanger housing pressure 3 bar, max. temperature 110 °C, without insulation

• Order insulation material separately!
• Top-quality, durable copper finned tube heat exchanger

Type	Item no.	Collector surface area	Connections VL/RL	fits to	Price
ST 10	1620093	up to 10 m ²	3/4" male thread	PC/PH 500-800	855.-
ST 20	1620094	up to 20 m ²	3/4" male thread	PC/PH 500-1500	1,015.-
ST 40	1620095	up to 40 m ²	1" male thread	PC/PH 800-2500	1,345.-
ST 60K	1620002	up to 60 m ²	5/4" male thread	PC/PH 1000-2500	1,780.-
ST 60	1620003	up to 60 m ²	5/4" male thread	PC/PH 3000-5000	1,845.-

Insulation for spherical exchanger

Polyester fibre fleece insulation with polystyrene outer shell in grey RAL9022; best heat insulation properties guaranteed, insulation fire resistance class B2, CFC free and 100% recyclable.

ISOVS-ST 10-40	1610561	Polyester fibre fleece insulation for ST 10-40	305.-
ISOVS-ST 60K	1610562	Polyester fibre fleece insulation for ST 60K	445.-
ISOVS-ST 60*	1610563	Polyesterfaservlies-Isolierung für ST 60	449.-



*Note: Not held in stock (delivery time approx. 6 to 8 weeks)



Spherical exchanger connection set for Pro-Clean® and Pro-Heat

The spherical exchanger connection set allows easy and reliable connection of the spherical exchanger connections to the rest of the piping.

Type	Item no.	For the spherical exchanger	Connections	Price
STAS 34	1610111	ST 10 / ST 20	R 3/4" AG	49.-
STAS 1	1610112	ST 40	R 1" AG	74.-
STAS 54	1610113	ST 60K / ST 60	R 5/4" AG	145.-



Note: Other connections with tapered male thread



Dummy flange plate for spherical exchanger connections

Four of these are needed when using the Pro-Clean® and Pro-Heat tank without spherical exchanger!

Type	Item no.	Description	Price
FLP-ST	1620000	Dummy flange plate for spherical exchanger connections	10.-



SOLAR FRESH WATER TANK



FS/1R solar fresh water tank for domestic water and heating

Fresh water tank with a smooth pipe coil at the bottom for solar charging. Multi-functional tank system made of S 235 JR steel for domestic water and heating. Backup tank with integrated hygienic water heating in a continuous heating process with corrugated stainless-steel pipe (stainless steel 1.4404). Max. tank operating pressure 3 bar, max. operating pressure of hot domestic water corrugated pipe 6 bar, max. temperature +110 °C. Including mounting options for solar station and solar expansion tank.

Solar fresh water tank FS/1R

Type	FS 375/1R	FS 500/1R	FS 800/1R	FS 1000S/1R
Item no.	1610603	1610303	1610304	1610305
Tank volume	361 l	514 l	744 l	930 l
Overall height With insulation ¹	1725 mm	1860 mm	2010 mm	2220 mm
Dia. with Insulation ¹	710 mm	850 mm	950 mm	990 mm
Dia. without Insulation ¹	550 mm	650 mm	750 mm	790 mm
Tilt height ¹	1695 mm	1820 mm	1975 mm	2185 mm
Smooth pipe coil surface area	1.5 m ²	1.8 m ²	2.2 m ²	2.8 m ²
Surface area of stainless steel corrugated pipe	3.87 m ²	5.16 m ²	6.45 m ²	6.45 m ²
Weight	136 kg	172 kg	217 kg	248 kg
Price	1,840.-	1,925.-	2,245.-	2,385.-

 ¹⁾ All size specifications have a tolerance range of +/- 3%.

Insulation for FS/1R solar fresh water tanks

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Best heat insulation properties guaranteed, insulation fire resistance class B2, CFC-free and 100% recyclable.

Type	ISOVL FS 375/1R	ISOVL FS 500/1R	ISOVL FS 800/1R	ISOVL FS 1000S/1R
Item no.	1610552	1610553	1610554	1610555
Insulation thickness ¹	80 mm	100 mm	100 mm	100 mm
Price	385.-	405.-	478.-	555.-

 ¹⁾ All size specifications have a tolerance range of +/- 3%.





FS-2R two-zone stratified tank for domestic water and heating

Fresh water tank with **two smooth pipe coils** (located below and above) for solar two-layer charging. Multi-functional tank system made of S 235 JR steel for domestic water and heating. Backup tank with integrated hygienic water heating in a continuous heating process with corrugated stainless-steel pipe (stainless steel 1.4404). Max. tank operating pressure 3 bar, max. operating pressure of domestic hot water corrugated pipe 6 bar, max. temperature +110 °C. The solar station and expansion tank are mounted on the wall.

FS/2R solar fresh water tank

Type	FS 500/2R	FS 800/2R	FS 1000S/2R	FS 1250/2R	FS 1500/2R	FS 2000/2R
Item no.	1610692	1610288	1610289	1610783	1610784	1610785
Tank volume	514 l	744 l	930 l	1246 l	1496 l	1889 l
Overall height With insulation ¹	1860 mm	2010 mm	2220 mm	2300 mm	2290 mm	2380 mm
Dia. with Insulation ¹	850 mm	950 mm	990 mm	1100 mm	1200 mm	1300 mm
Dia. without Insulation ¹	650 mm	750 mm	790 mm	900 mm	1000 mm	1100 mm
Tilt height ¹	1820 mm	1975 mm	2185 mm	2270 mm	2275 mm	2380 mm
Area of smooth pipe register	1.8 + 1.2 m ²	2.2 + 1.5 m ²	2.8 + 1.9 m ²	3.2 + 2.1 m ²	3.6 + 2.4 m ²	4.0 + 2.8 m ²
Surface area of stainless steel corrugated pipe	5.16 m ²	6.45 m ²	6.45 m ²	6.45 m ²	7.74 m ²	9.03 m ²
Weight	194 kg	230 kg	277 kg	311 kg	420 kg	422 kg
Price	1,975.-	2,420.-	2,560.-	3,515.-	3,830.-	4,305.-

¹ All size specifications have a tolerance range of +/- 3 %.

Insulation for FS/2R solar fresh water tanks

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Best heat insulation properties guaranteed, insulation fire resistance class B2, CFC-free and 100% recyclable.

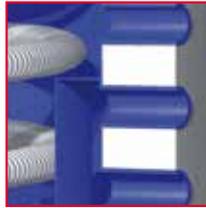
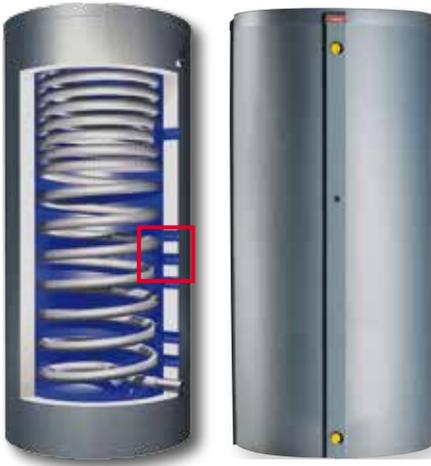
Type	ISOVL FS 500/2R	ISOVL FS 800/2R	ISOVL FS 1000S/2R	ISOVL FS 1250/2R	ISOVL FS 1500/2R	ISOVL FS 2000/2R
Item no.	1610742	1610556	1610557	1610795	1610796	1610800
Insulation thickness ¹	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm
Price	408.-	482.-	560.-	875.-	975.-	990.-

¹ All size specifications have a tolerance range of +/- 3 %.



FRESH WATER TANK FOR HEAT PUMP

NEW



Detail baffle plate

- baffle plates
- Generously dimensioned stand by part for domestic hot water generation

Fresh water tank for FS/WP for heat pump.

dual simple combination tank made of S235JR steel, to combine with heat pump. The tank has a generously proportioned stand-by part for domestic hot water. The water is heated with a stainless steel corrugated pipe (1.4404) using a hygienic, continuous heating process. All necessary connections provided; includes 2x 2" sleeves for electric screw-in heating elements. Not insulated.

Technical data for FS/WP

Max. operating temperature 110°C; max. operating pressure: 3 bar; corrugated pipe: 6 bar

Type	FS 500/WP	FS 800/WP	FS 1000-S/WP	FS 1250/WP
Item no.	1610913	1610914	1610915	1610916
Nominal volume	514 l	744 l	930 l	1246 l
Height with insulation ¹	1860 mm	2010 mm	2220 mm	2300 mm
Diameter with insulation ¹	850 mm	950 mm	990 mm	1100 mm
Diameter without insulation ¹	650 mm	750 mm	790 mm	900 mm
Tilt height ¹	1820 mm	1975 mm	2185 mm	2270 mm
Weight	146 kg	176 kg	206 kg	240 kg
Max. flow rate of the heat pump without mixing of the zones	2.1 m ³ /h	2.5 m ³ /h	2.6 m ³ /h	2.7 m ³ /h
Surface of the domestic water heat exchanger	6.45 m ²	7.74 m ²	7.74 m ²	9.03 m ²
Price	1,770.-	1,975.-	2,075.-	2,770.-

 ¹⁾ All size specifications have a tolerance range of +/- 3 %.

Insulation for FS/WP fresh water tank

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022) and adjustable clip locking rails. Incl. lid and base insulation, EPS sealing cover. Fire resistance class B2. CFC-free and 100 % recyclable.

Type	ISOVL FS 500/WP	ISOVL FS 800/WP	ISOVL FS 1000S/WP	ISOVL FS 1250S/WP
Item no.	1610917	1610918	1610919	1610920
Insulation thickness ¹	100 mm	100 mm	100 mm	100 mm
Price	405.-	478.-	560.-	875.-

 ¹⁾ All size specifications have a tolerance range of +/- 3 %.





PS/1R solar stratified tank (prepared for FWM)

Tank manufactured according to DIN 4753 Part 1, with a smooth pipe coil made of S 235 JR steel, rough on the inside with rust-protection priming on the outside. Welded joints compliant to DIN 4753 Part 3. All required connections provided. Inflow absorbers for optimum retention of stratification. Includes a mounting facility for solar station and solar expansion tank, as well as for fresh water module. Max. operating pressure: 3 bar, max. temperature: +110 °C.

Technical data for PS/1R solar stratified tank

Type	PS 500/1R	PS 800/1R	PS 1000S/1R
Item no.	1610790	1610791	1610792
Tank volume	514 l	744 l	930 l
Overall height with Insulation ¹	1860 mm	2010 mm	2220 mm
Ø with insulation ¹	850 mm	950 mm	990 mm
Ø without insulation ¹	650 mm	750 mm	790 mm
Tilt height ¹	1800 mm	1965 mm	2180 mm
Solar register	1.9 m ²	2.5 m ²	3.1 m ²
Weight	181 kg	205 kg	239 kg
Price	1,315.-	1,475.-	1,555.-

Insulation for PS/1R solar fresh water tanks

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation. Best heat insulation properties guaranteed, insulation fire resistance class B2, CFC-free and 100 % recyclable.

Type	ISOVL PS/1R 500	ISOVL PS/1R 800	ISOVL PS/1R 1000S
Item no.	1610797	1610798	1610799
Insulation thickness ¹	100 mm	100 mm	100 mm
Price	510.-	550.-	610.-

¹ All size specifications have a tolerance range of +/- 3 %.

Fresh water module

The fresh water module guarantees permanently fresh and vital hot water. Required quantities can be supplied without any waiting time or temperature fluctuations. A long service life is ensured by high-quality components and protection against limescale deposition due to thermal conditions.

Product advantages: Prevents the development of Legionella bacteria, very fast response times, tank or wall installation, for 1 to 3 family households, separable flat sealing system connection, high tap quantities through utilisation of a large heat exchanger.



Type	FWM 30
Item no.	1610802
Tap output	30 l/min
Max. domestic water operating pressure:	10 bar
Max. heater operating pressure	3 bar
Max. permitted operating temperature	95°C
Charger pump	230V/50Hz
Weight	20 kg
Price	1,825.-



Circulation pump

Attachable to the fresh water module using a simple plug-in system. Temperature selection switch and time switch are integrated.

Type	Item no.	Description	Price
ZIRK FWM	1610803	Pump 230 V/50 Hz, power consumption 8 W, nominal current < 0.1 A	565.-

BACKUP TANK



Perfect for volume expansion for TiSUN tanks

PS backup tank

Tank manufactured according to DIN 4753 Part 1, made of S 235 JR steel, rough on the inside with rust-protection on the outside. Welded joints compliant to DIN 4753 Part 3. All required connections provided. No insulation, max. operating pressure 3 bar, max. temperature +110 °C

Technical Data for PS backup tank

Type	PS 500	PS 800	PS 1000B	PS 1000S	PS 1250	PS 1500	PS 2000	PS 2500*	PS 3000*	PS 4000*	PS 5000*
Item no.	1610655	1610656	1610657	1610658	1610659	1610660	1610661	1610662	1610663	1610664	1610665
Tank volume	514 l	744 l	971 l	930 l	1246 l	1496 l	1889 l	2430 l	2910 l	3920 l	4950 l
Overall height with Insulation ¹	1860 mm	2010 mm	2050 mm	2220 mm	2300 mm	2290 mm	2380 mm	2270 mm	2770 mm	2400 mm	2910 mm
Ø with insulation ¹	850 mm	950 mm	1050 mm	990 mm	1100 mm	1200 mm	1300 mm	1500 mm	1470 mm	1820 mm	1820 mm
Ø without insulation ¹	650 mm	750 mm	850 mm	790 mm	900 mm	1000 mm	1100 mm	1300 mm	1250 mm	1600 mm	1600 mm
Tilt height ¹	1800 mm	1965 mm	2020 mm	2180 mm	2270 mm	2280 mm	2380 mm	2350 mm	2780 mm	2520 mm	2945 mm
Weight	130 kg	150 kg	163 kg	168 kg	204 kg	236 kg	267 kg	403 kg	415 kg	510 kg	520 kg
Price	730.-	830.-	890.-	895.-	1,180.-	1,415.-	1,620.-	2,575.-	2,780.-	4,445.-	4,815.-

⚠ *Not held in stock (delivery time approx. 6 to 8 weeks)

1) All dimensions have a tolerance range of +/- 3 %.

Polyester fibre fleece insulation for PS backup tanks

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs. Best heat insulation properties guaranteed, insulation fire resistance class B2, CFC-free and 100 % recyclable.

Type	ISOVL PS 500	ISOVL PS 800	ISOVL PS 1000 B	ISOVL PS 1000 S	ISOVL PS 1250	ISOVL PS 1500	ISOVL PS 2000	ISOVL PS 2500*	ISOVL PS 3000*	ISOVL PS 4000*	ISOVL PS 5000*
Item no.	1610873	1610874	1610875	1610876	1610877	1610878	1610879	1610880	1610881	1610882	1610883
Insulation thickness ¹	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	110 mm	110 mm	110 mm
Price	455.-	635.-	715.-	720.-	840.-	960.-	1,065.-	1,215.-	1,465.-	1,545.-	2,295.-

⚠ *Not held in stock (delivery time approx. 6 to 8 weeks)

1) All dimensions have a tolerance range of +/- 3 %.

inflow pipe

The universally usable inflow pipe is cathodic-dip painted and facilitates steady stratification in the tank during heating processes. For installation in backup tanks with Rp 6/4" fem thr. EPD-coated.



Type	Item no.	Thread	Installation length	Price
ESD 64	1610608	Rp 6/4" - R 6/4"	400 mm	111.-



BE-SSP-2R solar hot water tank

Enamelled hot water tank made of steel (S 235 JR) with two coiled tube heat exchangers – 1x upper hot water register (= stand-by part), 1x lower solar register). Maximum design pressure is 10 bar, max. domestic water temperature +95 °C. Including magnesium anode for anticorrosive protection. All necessary connections are at hand; access flange and 6/4" sleeve for electric screw-in heating element also at hand. Up to 500 litres with fixed hard PU foam for insulation ($\lambda = 0.034 \text{ W/m}^2\text{K}$); starting with 750 litres without insulation! Option to install TiSUN solar station and expansion container on tank.

Technical Data for BE-SSP-2R solar hot water tank

Type	BE-SSP-2R 200	BE-SSP-2R 300	BE-SSP-2R 400	BE-SSP-2R 500	BE-SSP-2R 750	BE-SSP-2R 1000
Item no.	1610711	1610712	1610713	1610714	1610715	1610716
Tank volume	184 l	283 l	365 l	452 l	728 l	952 l
Overall height With insulation ¹	1432 mm	1794 mm	1591 mm	1921 mm	2043 mm	2070 mm
Dia. with Insulation ¹	540 mm	600 mm	700 mm	700 mm	950 mm	1050 mm
Dia. without Insulation ¹	–	–	–	–	750 mm	850 mm
Installation dimensions	540 mm	600 mm	700 mm	700 mm	850 mm	950 mm
Tilt height ¹	1514 mm	1876 mm	1712 mm	2023 mm	2098 mm	2150 mm
Smooth pipe coil Top + bottom	0.6+1.0 m ²	0.8+1.3 m ²	0.9+1.7 m ²	1.1+1.8 m ²	1.2+1.9 m ²	1.4+2.1 m ²
Weight	75 kg	116 kg	132 kg	149 kg	221 kg	272 kg
Price	1,065.-	1,345.-	1,695.-	1,795.-	2,555.-	3,015.-



Polyester fibre fleece insulation for BE-SSP-2R tanks starting with 750 l

Three-part polyester fibre fleece insulation ($\lambda = 0.041 \text{ W/m}^2\text{K}$), with textured grey polystyrene outer shell (RAL 9022); adjustable clip locking rails, including lid and base insulation, EPS sealing plugs, fire resistance class B2. Guaranteed good thermal properties, CFC-free and 100 % recyclable.

Type	ISOVL-BE-SSP-2R 750	ISOVL-BE-SSP-2R 1000
Item no.	1610709	1610710
Insulation thickness ³	100 mm	100 mm
Price	475.-	520.-

Flange plate for BE-SSP-2R tanks starting with 500 l

Enamelled flange plates (DN 110), including seal, with 6/4" sleeve for installing an additional electric screw-in heating element.

Type	FLPE-SSP 64
Item no.	1610204
Price	67.-

¹⁾ All size specifications have a tolerance range of +/- 3 %.



TANK ACCESSORIES

Application possibilities for tank accessories

Designation	Abbrev. design.	Item no.	PC	PC 2WR	PH	FS 1R	FS 2R	PS 1R	Backup tank	BE-SSP-2R
FWM 30 fresh water module	FWM 30	1610802	-	-	✓	-	-	✓	-	-
Circulation lance	WT 5	1620012	✓	✓	-	✓	✓	-	-	-
Circulation unit	ALS 1500	1610610	✓	✓	-	✓	✓	-	-	✓
Corrugated connection pipe	PVS	1620025-28	✓	✓	✓	✓	✓	✓	✓	-
Priority flap	VK 1	1630004	✓	✓	✓	✓	✓	✓	✓	-
Plates/swimming pool exchanger	PWT-(SB)	1610364-75	✓	✓	✓	✓	✓	✓	✓	-
Electric screw-in heating element	EEH	1610468-74	✓	✓	✓	✓	✓	✓	✓	✓
Boiler safety group	BSG 3/4"	1610487	✓	✓	-	✓	✓	-	-	✓
Boiler safety centre 12 l	BSC 12	1610488	✓	✓	-	✓	✓	-	-	-
Boiler safety centre 18 l	BSC 18	1610489	-	-	-	-	-	-	-	✓
Extension sleeve for electr. heater	VM 64	1610609	✓	✓	✓	✓	✓	-	-	-
Sludge separator for heating circuits	SA 64	1610604	✓	✓	✓	✓	✓	✓	✓	-
Microbubble de-aerator for heating circuits	LA 64	1610606	✓	✓	✓	✓	✓	✓	✓	-
Bimetallic dial indicator thermometer	ZT 150	1610284	✓	✓	✓	✓	✓	✓	✓	-
Boiler thermostat	BT 100	1610318	-	-	-	-	-	-	-	✓
Boiler thermostat	BT 210	1610320	✓	✓	✓	✓	✓	✓	✓	-
Thimble	TH	1610068-69	✓	✓	✓	✓	✓	✓	✓	-

Circulation unit with domestic hot water mixing valve and circulation pump

For mixing hot water and circulation of service water in sanitary systems. Immediate availability of domestic water (lower water consumption). Integrated thermostatic domestic hot water mixing valve. Infinitely adjustable thermostat on the pump for optimised switching times.



Type	Item no.	Discharge capacity	Price
ALS 1500	1610610	Kvs=1500 l/h	945.-

Boiler safety group

The Boiler Safety Group (BSG) serves to provide optimum protection against pressure excesses in closed drinking water heaters, in compliance with DIN 1988 and DIN 4753 part 1. Incl. all components which are required to equip TWEs, in accordance with DIN 1988. The pressure relief valve protects the downstream drinking water heater and the return flow inhibitor prevents the heated drinking water from flowing back. DVGW tested.



Type	Item no.	Dimension	Connection	Pressure relief valve	Price
BSG - 3/4"	1610487	DN 20	G 3/4"	6 bar	175.-

Boiler safety centre

The BSC boiler safety centre protects closed drinking water heaters to max. 560 l volume, in compliance with DIN 1988, DIN 4753, part 5, and DIN 4807. Incl. permanent-streamed, drinking-water-compatible membrane expansion tank. DVGW tested. Also suitable for tanks with corrugated stainless-steel pipe.



Type	Item no.	Dimension	Connection	Pressure relief valve	AD tank	To boiler volume	Price
BSC - 12l	1610488	DN 20	G 3/4"	6 bar	12 l	200 l	445.-
BSC - 18l	1610489	DN 20	G 3/4"	10 bar	18 l	500 l	465.-

Corrugated connection pipe

including carrier trays, rubber insulation and 6/4" connector fitting. For use with heating systems up to 50 kW.



Type	PVS-K	PVS-K-VK	PVS-L	PVS-L-VK
Item no.	1620025	1620026	1620027	1620028
Length	1000 mm	1000 mm	1350 mm	1350 mm
Priority flap	-	Including priority flap	-	Including priority flap
Suitable for tank	500, 800, 1000S	500, 800, 1000S	1000B, 1250, 1500	1000B, 1250, 1500
Price	147.-	244.-	193.-	283.-

Circulation lance

For use with hot water systems with circulation losses of up to max. 5 kW (for details see Technical Catalogue).



Type	Item no.	Price
WT 5	1620012	91.-

Priority flap

Special priority flap for charging TiSUN tanks in the upper section, max. transfer rating 70 kW



Type	Item no.	Connection	Price
VK 1	1630004	5/4"	64.-

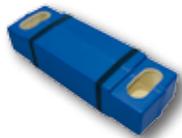


Plate heat exchanger

Optimised for solar applications with low temperature difference (5 Kelvin). Made of stainless-steel plates (ALLOY 316 / 1.4401), hard-soldered. Incl. high-temperature-resistant insulating material (up to 140 °C) and connection threaded fittings.

Hot water and heating

Type	PWT 10	PWT 25	PWT 50	PWT 75	PWT 100 ²	PWT 150 ²	PWT 200 ²	PWT 300 ³	PWT 500 ³
Item no.	1610969	1610970	1610971	1610972	1610973	1610974	1610975	1610976	1610977
For collector surface areas	Up to 10 m ²	Up to 25 m ²	Up to 50 m ²	Up to 75 m ²	Up to 100 m ²	Up to 150 m ²	Up to 200 m ²	Up to 300 m ²	Up to 500 m ²
Connection	1" AG	1" – 1 1/4" AG	1" – 1 1/4" AG	2" AG	2" AG				
D x W x H (mm) ¹	112 x 182 x 588	112 x 182 x 588	160 x 182 x 588	160 x 182 x 588	209 x 182 x 588	257 x 182 x 588	304 x 182 x 588	247 x 240 x 670	334 x 240 x 670
Price	320.-	365.-	590.-	755.-	1,125.-	1,920.-	1,970.-	2,590.-	3,390.-

¹ Dimensions incl. insulation ² Incl. fastening brackets ³ Incl. feet supports

Swimming pool

Type	PWT-SB 25	PWT-SB 50	PWT-SB 100 ²
Item no.	1610978	1610979	1610980
For collector surface areas	Up to 25 m ²	Up to 50 m ²	Up to 100 m ²
Connection	1" – 1 1/4" AG	1" – 1 1/4" AG	1" – 1 1/4" AG
D x W x H (mm) ¹	112 x 182 x 360	160 x 182 x 360	257 x 182 x 360
Price	970.-	1,425.-	2,135.-

¹ Dimensions incl. insulation ² Incl. fastening brackets



Note: Limit values for water constituents, see technical catalogue.
Not suitable for hot water applications. Custom designs and sizes available on request.

Sludge separator for heating circuits

The sludge separator removes sludge particles from the system water. This helps to reduce faults, wear and tear and maintenance to a minimum. Sludge particles can be flushed out while the system is running. Incl. EPP insulation.



Type	Item no.	Connection	Designation	Price
SA 64	1610604	6/4"	Sludge separator 6/4"	230.-

Microbubble de-aerator for heating circuits

This microbubble de-aerator removes circulating air and trapped air bubbles from the fluid very effectively. Automatic – no manual de-aeration required. Incl. EPP insulation.



Type	Item no.	Connection	Designation	Price
LA 64	1610606	6/4"	Air separator 6/4"	235.-

Extension sleeve

For installation of an electric screw-in heating element, EPD-coated.



Type	Item no.	Thread	Price
VM 64	1610609	Rp 6/4" - R 6/2"	26.-

Electric screw-in heating element

Electrical heating element for enamelled boiler and tank, with 6/4" male thread and 132 mm unheated zone starting with the sealing area. Heating elements made of high-corrosion-resistant chrome-nickel steel 2.4858 (NiCr21Mo), suitable for up to 10 bar operating pressure, protection class IP 44, temperature control unit 30 to 75°C with frost-protection function and integrated excess temperature protection (98 °C).



Type	EEH 2000	EEH 2500	EEH 3000	EEH 3750	EEH 4500	EEH 6000	EEH 9000
Item no.	1610468	1610469	1610470	1610471	1610472	1610473	1610474
Power	2.0 kW	2.5 kW	3.0 kW	3.75 kW	4.5 kW	6.0 kW	9.0 kW
Voltage	230 V	230 V	230 V	400 V	400 V	400 V	400 V
Installation depth	320 mm	390 mm	390 mm	390 mm	470 mm	470 mm	690 mm
Price	215.-	215.-	215.-	250.-	265.-	265.-	265.-



Technical tip: When using the Pro-Clean®, Pro-Heat or FS fresh water tank, an extension sleeve is required!

Electric flange heating

Electrical heating element for large tank in flange version (DN 200, outer diameter 280 mm, pitch circle diameter 245 mm) and 135 mm unheated zone starting with the sealing area. Heating elements made of high-corrosion-resistant chrome-nickel steel 2.4858 (NiCr21Mo), suitable for up to 10 bar operating pressure, protection class IP 44, temperature control unit 30 to 75°C with frost-protection function and integrated excess temperature protection (98 °C).



Type	EFH 12	EFH 18	EFH 30
Item no.	1610483	1610484	1610485
Power	12.0 kW	18.0 kW	30.0 kW
Voltage	400 V	400 V	400 V
Installation depth	550 mm	550 mm	700 mm
Price	585.-	995.-	1,015.-

Bimetallic dial indicator thermometer

Incl. brass immersion sleeve with 1/2" male thread, measuring range 0-120 °C.



Type	Item no.	Housing Ø	Length	Price
ZT 150	1610284	80 mm	150 mm	12.-

Boiler thermostat

Incl. brass immersion sleeve with 1/2" thread, break and make contact, measuring range 30-90 °C.



Type	Item no.	Setting range	Length	Price
BT 210	1610318	30 – 90° C	210 mm	40.-
BT 100	1610320	30 – 90° C	100 mm	35.-



Note: The BT 100 boiler thermostat is intended for size 200–500 BE-SSP tanks. For BE-SSP 200, a 1/2" valve extension must also be used on site.

Immersion sleeve for 1 sensor

Made from nickel-plated copper with R 1/2" male thread.

The immersion sleeve can take a temperature sensor (Ø 6 mm) and is equipped with cable strain relief.



Type	Item no.	Length	Penetration depth from the threads	Price
TH 100	1610068	110.5 mm	88.5 mm	12.-
TH 150	1610069	167 mm	145 mm	13.-

Immersion sleeve for 3 sensors

Made from copper with brass R 1/2" male thread.

The immersion sleeve can take three temperature sensors (Ø 6 mm) and is equipped with cable strain relief.



Type	Item no.	Length	Penetration depth from the threads	Price
TH 100/3	1020742	100 mm	80 mm	8.75

Correx Up impressed current anode

Maintenance-free titanium anode protects tanks from corrosion damage by means of potential-controlled impressed current supply.



Type	Item no.	Use	Price
FA-S1	1610064	For enamelled tanks up to 1000 l	285.-

Installation service for PFM module collector (for standard roof types) ³

Type	Item no.	Designation	Unit	Price
PFM-MON 1	1800108	Travel to site incl. installation of the 1st collector, crane on site, zone 1	per pcs	On request
PFM-MON 2	1800109	Travel to site incl. installation of the 1st collector, crane on site, zone 2	per pcs	On request
PFM-MON 3	1800110	Travel to site incl. installation of the 1st collector, crane on site, zone 3	per pcs	On request
PFM-MONKA 1	1800111	Travel to site incl. installation of the 1st collector, mobile crane up to 29 m, zone 1	per pcs	On request
PFM-MONKA 2	1800112	Travel to site incl. installation of the 1st collector, mobile crane up to 29 m, zone 2	per pcs	On request
PFM-MONKA 3	1800113	Travel to site incl. installation of the 1st collector, mobile crane up to 29 m, zone 3	per pcs	On request
PFM-MONEI	1800034	Installation price for 1 item PFM collector / in-roof	per pcs	On request
PFM-MONEP	1800035	Installation price for 1 item PFM collector / parallel installation on roof	per pcs	On request
PFM-MONEA	1800036	Installation price for 1 item PFM collector / standing on roof or freestanding	per pcs	On request
PFM-MONZA	1800037	Taking off roof tiles, incl. removal from roof	per collector	On request
PFM-MONZE	1800038	Putting in place and adapting of roof tiles	per collector	On request
PFM-MONA40	1800040	Surcharge for roof pitch over 40°	per pcs	On request
MON-FP	1800016	Installation of the flange plates (bitumen and elastomer)	per m ²	On request
MON-FP-A	1800029	Travel to/from site for installation of flange plates, zone 1 only	per pcs	On request
PFM-DAEIN	1800041	Roof insert of connections, fwd. + ret. flow, by means of TiSUN pipe insertion or de-aeration elements installed in the building (only for parallel roof installation).	per insertion	On request
SPMON	1800098	Flat rate cancellation charge ²		On request

Installation service for PFM-G large collector (also see page 58)

Type	Item no.	Designation	Unit	Price
L-MON1	1800128	Travel to site, delivery and installation of a large collector, using an on-site crane, zone 1.	per pcs	On request
L-MON2	1800129	Travel to site, delivery and installation of a large collector, using an on-site crane, zone 2.	per pcs	On request
L-MON3	1800130	Travel to site, delivery and installation of a large collector, using an on-site crane, zone 3.	per pcs	On request
LK-MON	1800131	Extra charge for delivery and installation for each additional collector, using an on-site crane	per pcs	On request
K-MON 1	1800114	Travel to site, delivery and installation of a large collector, using a mobile crane (up to 29 m crane length), zone 1	per pcs	On request
K-MON 2	1800115	Travel to site, delivery and installation of a large collector, using a mobile crane (up to 29 m crane length), zone 2	per pcs	On request
K-MON 3	1800116	Travel to site, delivery and installation of a large collector, using a mobile crane (up to 29 m crane length), zone 3	per pcs	On request
KK-MON	1800022	Extra charge for delivery and installation for each additional collector, using a mobile crane	per pcs	On request
K-A40	1800021	Additional charge for mobile crane (30 m to 40 m jib length)	per construction site	On request
MON-FP-A	1800029	Travel to/from site for installation of flange plates, zone 1 only	per pcs	On request
DA-EIN	1800007	Roof insert of connections, fwd. + ret. flow, by means of TiSUN pipe insertion or de-aeration elements installed in the building ³	per insertion	On request
GG-4M	1800118	Scaffolding ¹	per pcs	On request
MON-T	1800122	Mounting on thermo roofs (only on-roof mounting)	per pcs	On request
SPMON	1800098	Flat rate cancellation charge ²		On request

Installation zones

	Zone 1	Zone 2	Zone 3
Austria	Austria		
Germany/postal code	80 - 98	01 - 09, 30 - 39; 50 - 79, 99	10 - 29, 40-49
Italy	39000-39999	38000-38999	10000-37999, 40000-49999
Slovenia		Slovenia	
Hungary			Hungary
Switzerland			Switzerland
France	Starting with 50m ² collector surface area: installation on request		

¹ Under which preconditions is scaffolding required?

- For façade collector installations
- For roofs with eaves height > 3 m and installation directly on the edge of the eaves
- For roofs > 40° without securing systems for safety harnesses

³ **Standard roof types:** tiled roof (not screwed in place), tin joint, corrugated cement asbestos, corrugated sheet, side lock tiles, plain tile. For the taking off and putting on again of **non-standard** roof types (e.g.: screwed in place tiled roof, slate, flat cement asbestos, monk and nun tiles, etc.) a roofing specialist must be dispatched on site by the customer.

In order to prevent damage to roofing tiles under increased snow loads, it is recommended to use roofing tiles made of metal. We assume no liability whatsoever for damage to roofing tiles in the vicinity of roof attachment points.



Important information for calculating all installation costs!

Road blocks, official permits and safety equipment on site are charged on a time and material basis. Additional work and idle time are charged separately. The flashing must be made on site for roof coverings not included in the price list. For 100 m² and more, installation price on request.

² Cancellation fees can be charged if:

- A scheduled installation is cancelled too late, i.e. the installation team and/or crane are already on their way or have been ordered.
- The installation is cancelled due to lack of preparatory work on site
- The installation is cancelled due to incorrect information specified in the collector order sheet

INSTALLATION SERVICES

PFM-G large collector: Parallel installation on roof (for standard roof types) ⁴

Roof pitch up to max. 40°, above this, additional charge of 50 % on the installation item in question.

Type	Item no.	Designation	Unit	Price
P-MON-PL	1800008	Installation of all TiSUN® original parallel mounting material (except flange plates)	per m ²	On request
MON-FP	1800016	Installation of the flange plates (bitumen and elastomer)	per m ²	On request
UG-MON-FP	1800015	Installation of the collector substructure on flange plates	per m ²	On request

PFM-G large collector: On-roof raised installation (for standard roof types) ⁴

Roof pitch up to max. 40°, above this, additional charge of 50 % on the installation item in question.

Type	Item no.	Designation	Unit	Price
UG-MON-PL	1800012	Installation of the collector frame and roof mounts (except flange plates)	per m ²	On request
UG-MON-BL	1800013	Installation of the collector frame and roof mounts for Tin joint roofing	per m ²	On request
MON-FP	1800016	Installation of the flange plates (bitumen and elastomer)	per m ²	On request
UG-MON-FP	1800015	Installation of the collector substructure on flange plates	per m ²	On request

PFM-G large collector: Freestanding installation

Installation of collector substructure and mounting material on foundations and on-site frames.

Type	Item no.	Designation	Unit	Price
UG-MON-SS	1800014	Installation of the collector frame and mounting material for: Concrete foundation and free-standing installation	per m ²	On request

PFM-G large collector: Installation of the metal covering

Roof pitch to max. 30°, if steeper additional cost of 50 % on the installation item in question; metal covering for customised collectors has to be built on site.

Type	Item no.	Designation	Unit	Price
BL-MON-U	1800025	Installation of flashing around the entire combined collector array	per linear metre	On request
ZI-MON	1800119	Removal and placement of the roof tiles incl. transfer from the roof by crane, provision of pallets on site (removal and placement of plain tile, slate, flat cement asbestos, shingle and Spanish tile on site).	per linear metre	On request
AZ-BSE	1800120	Exposure and covering of plain tiles / shingle roof (single-layer covering)	per linear metre	On request
AZ-BSD	1800121	Exposure and covering of plain tiles / shingle roof (dual-layer cover)	per linear metre	On request
MON-T	1800122	Mounting on thermo roofs	per pcs	On request

SERVICES AND COMMISSIONING

Commissioning of the solar system (only installation zone 1)

The following additional commissioning fees are charged according to the start-up work performed. The system must be ready for operation (fully installed, pressure tested, with electrical connections and filled, if appropriate). Set-up: Setting the control unit, function check, instruction of the system operator and handover certificate.

Type	AF	IBSOL 25	IBSOL 50	IBSOL 100	IBSOL 200	IBSOL 500
Item no.	1800089	1800088	1800055	1800056	1800058	1800059
Designation	Filling the system excluding anti-freeze	Commissioning of solar system up to 25 m ²	Commissioning of solar system up to 50 m ²	Commissioning of solar system up to 100 m ²	Commissioning of solar system up to 200 m ²	Commissioning of solar system up to 500 m ²
Price	On request	On request	On request	On request	On request	On request

Maintenance of the solar system (only installation zone 1)

The following additional maintenance fees are charged according to maintenance work performed. The system has to be ready for operation (fully installed, pressure tested, with electrical connections and in operation). Maintenance: Control system check, visual and functional inspection, frost protection check, system pressure check, instruction of the system operator and handover certificate.

Type	FT	AWSOL 25	AWSOL 50	AWSOL 100	AWSOL 200	AWSOL 500
Item no.	1800090	1800091	1800092	1800093	1800094	1800095
Designation	Anti-freeze replacement excl anti-freeze	System maintenance up to 25 m ²	System maintenance up to 50 m ²	System maintenance up to 100 m ²	System maintenance up to 200 m ²	System maintenance up to 500 m ²
Price	On request	On request	On request	On request	On request	On request

There will be an extra charge for all work performed beyond these flat fees!

Service

Type	SV	TS 25	FK 50
Item no.	1800063	1800066	1800067
Designation	Hourly rate for service	Hourly rate for a technician	Travel costs per km (to/from Söll, Austria)
Price	On request	On request	On request

In order to prevent damage to roofing tiles under increased snow loads, it is recommended to use roofing tiles made of metal. We assume no liability whatsoever for damage to roofing tiles in the vicinity of roof attachment points.



Important information for calculating all installation costs!

Road blocks, official permits and safety equipment on site are charged on a time and material basis. Additional work and idle time are charged separately. The flashing must be made on site for roof coverings not included in the price list. For 100 m² and more, installation price on request.

GENERAL TERMS AND CONDITIONS OF BUSINESS AND DELIVERY

1. General information:

These terms and conditions of business are an integral part of every product and service we offer and every legal transaction with TiSUN® GmbH (referred to as TiSUN® henceforth). Other agreements, especially contradictory oral arrangements, are only legally binding if confirmed in writing. General terms and conditions of business, regardless of the type, that conflict with these terms and conditions of business shall be considered invalid and therefore do not form part of the agreement. If individual provisions in this agreement prove to be legally invalid, the remaining provisions are not affected.

2. 2. Offer:

Products and services offered by TiSUN® are subject to confirmation. We reserve the right to make changes to products due to technical developments. All technical documents are intellectual property of TiSUN®.

3. 3. Purchase orders:

Telephone orders are only accepted at the risk of the contract partner and are subject to the currently applicable General Terms and Conditions of Business and Delivery. Direct orders by the contract partner become legally binding on sending the order confirmation or the delivery slip. Oral agreements, promises and the like, including those of representatives and other company employees of TiSUN® require written confirmation before becoming legally effective. Special requests and guarantees of special properties which vary from standard offers must be agreed in writing.

4. 4. Prices:

Unless otherwise agreed in writing, prices are net prices ex works, not including packaging and not including discounts. They are guideline prices unless a fixed price has been expressly agreed in writing. If material costs increase in the period of time between bid quotation and signature of the contract, the prices shall increase accordingly, provided that the time between order placement and provision of the service is over two months. All products and services above and beyond the original subject of the contract must be paid for in accordance with the actual cost. Any price reductions agreed shall only be applicable if all ordered goods are purchased.

5. 5. Delivery/provision:

Delivery is made at the contract partner's cost and risk. The risk and price hazard shall be passed on to the purchaser with the transfer of the goods to the freight carrier or forwarding agent. The contract partner is aware that delivery – also if this should be made directly by TiSUN® – requires an access road that can accommodate a heavy truck. The contract partner shall also pay for and obtain any premissions and traffic safety measures that may be required. If these requirements are not fulfilled by the specified delivery address, the contract partner has to bear any resulting additional costs. Delivery will be made to the address of the contract partner unless agreed otherwise. If the delivery address should change after conclusion of the contract, TiSUN® is entitled to charge the contract partner the extra cost incurred (travelling expenses etc.). The contract partner undertakes to provide staff to unload the goods, particularly if products are very heavy or bulky. The contract partner is required to store the goods separately from the goods supplied by other vendors and identify them as TiSUN® products. The delivery periods are subject to correct and punctual delivery by sub-suppliers. Delivery periods are never binding unless a fixed date is expressly agreed. They begin on receipt of the order confirmation or on the day of agreement by the sales staff, but never before clarification of all execution details. Failure of the contract partner to provide information about the latter in good time, will mean that the contract partner will also have to bear responsibility for resulting delays in delivery and TiSUN® shall be freed from any claims for liability. The same shall apply for fixed dates. If no other agreements are made, delivery periods are quoted from the shipping location by TiSUN®. If the agreement is changed retrospectively, TiSUN® is entitled to fix a new date of delivery. The goods shall be considered to be delivered on time even if these are not fetched immediately after notification of readiness for shipping on the delivery date. If this occurs, TiSUN® is entitled to store the goods at the cost of the customer. TiSUN® is not liable for delivery delays not caused by the company or due to slight negligence. In this case, the contract partner waives the right to withdraw from the contract and to assert claims for damages. The contract partner is liable for delays in the provision of the service caused by themselves and must bear all resulting additional costs. These costs can be invoiced separately. Natural catastrophes, labour disputes, overbearing acts, war, riots, traffic impediments and other unforeseeable events, etc., release TiSUN® from the obligation to deliver for the duration of their effect, or entirely, if delivery becomes impossible.

6. 6. Shipping costs:

All shipping costs must be borne by the contract partner, unless other agreements are made.

7. 7. Transport damage:

The contract partner bears the costs resulting from transport damage due to force majeure and other risks excluded from the indemnity insurance of the freight carrier or forwarding agent. The contract partner or recipient is obliged to check the condition of the goods together with the delivery company on receipt. In case of externally visible damage or short delivery, written reservation has to be indicated on the delivery slip or shipping document and confirmed by signature of the delivery company. Not immediately recognisable short deliveries or damages have to be reported in writing to the delivery company as well as to TiSUN® not later than within three days after acceptance of the delivered goods, otherwise all claims for compensation are void. If the contract partner fails to fulfil these inspection and notification obligations, the contract partner has to make any claims for compensation directly to the delivery company. In this case, TiSUN® shall transfer its claims from the shipping or transport contract to the contract partner if requested. In case of properly certified transport damage, the contract partner is required to report the damage immediately upon receipt of the goods to TiSUN® in writing, otherwise claims for compensation are lost. Claims against third parties resulting from this damage must be ceded to TiSUN® on request. If it should not be possible to make a claim for compensation from the delivery company because the contract partner reports the damage late, or if the claims are void as a result of the statute of limitations, TiSUN® is released from any liability for compensation to the contract partner.

8. 8. Complaints and warranty:

The contract partner or recipient of the goods is obliged to inspect all of the goods for any deficiency after delivery of the goods and to report these in writing to TiSUN® not later than within 3 working days after delivery. The warranty to the contract partner shall become void if this stipulation is not fulfilled. If a deficiency is recognised at a later stage, but before expiry of the warranty period, the contract partner is required to report this in writing to TiSUN® within one week after discovery and to refrain from any further processing. If no report is sent within the period set, the goods shall be considered approved. In deviation from legal regulations, it is hereby agreed that the warranty period shall expire two years after the issue date of the invoice. If materials of the tanks in the TiSUN® product range should demonstrably fail to meet the requirements of the standard EN 12975, free of charge repair shall be conducted, or if this is not appropriate, the tank concerned shall be replaced at no extra charge, within a period five years after invoice issue date. This shall not apply in case of incorrect assembly and installation, exceeding the permitted operating pressure and improper use. If collectors in the TiSUN® product range should lose functionality within ten years after the relevant invoice issue date, TiSUN® shall be committed to restore the collectors. This excludes all damage, malfunctions and changes attributable to incorrect assembly and installation, mechanical stress, force majeure and weather-related influences (e.g. broken glass in collectors) as well as operating and maintenance errors. This special regulation for collectors shall also not apply for minor variations in colour, decrease in performance and damage and changes to the surface that have no effect on the functionality of the collector. All warranty and claims for damages including claims from the special regulations for collectors and tanks in the TiSUN® product range shall become completely void, if assembly and start-up installation was not carried out by an authorised specialised company (installer), with observation of the respectively applicable assembly and operating instructions, if TiSUN® or those appointed by the company were not given an opportunity to inspect the claimed deficiencies on site immediately after their occurrence, if no evidence of proper start-up and conduction of annual inspection and maintenance by a specifically authorised specialist company can be supplied, if the protective anode of all service water tanks was not checked by an authorised specialist company every year and found to be functional, if a protective anode is missing or the permitted operating pressure is exceeded, if oxygen is present in the heating system, if finned tube heat exchangers are utilised without installed electrical separations, if the original TiSUN® frost protection and the hydraulic connection and expansion sets with expansion compensation are not used. To ensure full functionality of the solar system, TiSUN® recommends conduction of a solar check by TiSUN® or an authorised TiSUN® partner at least once a year. No changes may be made to the subject of complaint without express written approval, or the warranty claims become void. Warranty is provided at the discretion of TiSUN® in the form of repair or replacement of the subject of complaint. Replaced parts and products become property of TiSUN®. There is no entitlement to conversion or price reduction, unless the deficiency cannot be rectified within a reasonable period. Any labour costs associated with replacing the goods and the costs of finding

the fault shall be borne exclusively by the contract partner. No liability for production- and material-related variations in colour is accepted. If the TiSUN® products are installed in other systems, these are required to comply with the technical standards in our enclosed product descriptions and operating instructions or the warranty becomes void. Damage resulting from improper treatment by the contract partner or the contract partner's assistants is excluded from the warranty. The right of recourse in accordance with § 933b ABGB (Austrian Civil Code) between the parties to the contract is excluded.

9. 9. Exclusion of liability:

No liability whatsoever is accepted for consequential harm caused by a defect. TiSUN® will not accept liability for correct static execution of the base and the on-site frame.

10. 10. Product liability and compensation:

TiSUN® shall not accept liability for the correctness of data on handling, operating or running contained in brochures, technical descriptions or other directions of the manufacturers. Resulting damage is the liability of the manufacturer and/or importer and all claims must be made to him/them. TiSUN® undertakes to cede any claims for compensation resulting from the contractual relationship with the importer or manufacturer to the contract partner on request. The contract partner waives the right to claim compensation for follow-on damage and to claim for lost profit from TiSUN®, if TiSUN® is not responsible for either intentional or grossly negligent action. TiSUN® points out that no Solar Keymark certification is available for custom size collectors.

11. 11. Returning delivered goods:

Returns of non-defective goods are only accepted in special cases and after prior written approval. Custom productions, special orders, products that are not in the original packaging or damaged cannot be taken back at all. The return delivery has to be sent with shipping paid and at the risk and cost of the contract partner to the TiSUN® delivery warehouse. Credit for returned goods in perfect condition will be calculated based on the invoice amount and the remaining value of the goods minus handling fees of 15% of the net value of the goods.

12. 12. Payment:

If no other agreements were made, all payments must be made immediately. The full amount must be paid by credit transfer, including all transaction fees. If a discount is granted, all previous invoices must be paid to entitle the customer to deduct the discount amount. Cheques and bills of exchange will only be accepted if agreed separately and only as payment, not in full discharge of the obligation. All recovery and discount charges are payable by the contract partner. Payments must be made relieving debt only to the account specified in the order confirmation or invoice or to a person with the authority to collect. Sales tax on the entire price must be paid in full after billing unless other terms and conditions of payment were agreed correcting the purchase price.

13. 13. Default of payment:

If the payment target is exceeded, if payment is received late or if deadlines are not met, late charges calculated at 5% above the rate set by the Austrian National Bank will be levied. We reserve the right to claim for damages beyond that. If the contract partner makes a late payment, TiSUN® is entitled to demand immediate settlement of all outstanding payments. This shall apply even if a deferral was agreed before. TiSUN® is furthermore entitled to demand advance payment and sureties for outstanding deliveries, without affecting other rights. All dunning and collecting charges incurred, as well as legal costs, must be reimbursed by the contract partner. The latter agrees that incoming partial payments will first be used for costs and dunning fees, then interest and other additional fees, and finally for the principal purpose.

14. 14. Retention of title:

All delivered, installed or otherwise supplied products shall remain property of TiSUN® until full payment of all demands. If goods subject to retention of title are processed with goods belonging to others, title is not lost. Instead, the new item becomes joint property, to a value in proportion to the value relationship of the processed goods at the time of processing. If the goods under retention of title are sold on, the contract partner cedes the resulting accounts receivable from the purchaser(s) to the amount of the value of the sold goods under retention of title as surety to TiSUN®. Until revocation at any time, the contract partner is entitled to collect amounts due ceded to TiSUN® as surety. However, the contract partner may not cede these to third parties. On request by TiSUN® the contract partner is obliged to inform his buyer of the cession and to tell him that the buyer can only discharge his debts by paying TiSUN®. The agreed cession of claims does not release the contract partner from on-time payment of all claims. The contract partner is obliged to inform TiSUN® immediately about any seizure of the goods under retention of title.

15. 15. Place of performance and place of jurisdiction:

Place of performance for both parties is the headquarters TiSUN®. For all legal disputes between TiSUN® and the contract partner, regardless of the amount in dispute, the sole competent court shall be the district court of Kufstein (Bezirksgericht Kufstein) in accordance with Section 104 JN (Austrian Code of Judicial Organisation) or Article 23 of the Council Regulation (EC) No 44/2001 (EuGVVO). This also applies to law cases concerning bills of exchange and cheques.

16. 16. Applicable law:

The contract parties agree that only Austrian law will be applicable for all legal transactions with TiSUN® including the matter of the coming into existence of the contract. The application of the provisions of the United Nations convention on contracts on international purchasing is excluded on mutual agreement.

17. 17. Data storage:

The contract partner agrees that his data shall be recorded, stored and processed electronically where necessary for business, and in accordance with the applicable data protection law.

18. 18. Trademark protection:

TiSUN®, the TiSUN® logo, tisun.com and Pro-Clean® are trademarks or registered trademarks of the TiSUN® group of companies in Austria and/or other countries.

All rights of use and marketing of the trademarks are exclusively reserved for TiSUN® Brand GmbH.

19. 19. General information:

TiSUN® reserves the right to make technical changes to the offered products. No rights whatsoever can be derived from any setting and printing errors in the price lists. Images shown therein are symbolic photographs. Product prices are net prices excluding value-added tax. Prices are subject to change. Prices quoted without specification of quantity are prices per piece.

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