Heat.
Life.
Future

SolvisMax – The All-Rounder

7-Series SolvisMax Product Presentation

SolvisMax 7

Contents:

SolvisMax 7 → The All-Rounder

Front and Side Casing Parts, Pipe Lead-Through Openings

Flange and Tank Insulation

Storage Tank Setup, Storage Tank Installations

The Stations in Detail → WWS and SÜS

The Charging Modules

The Order Structure

The Solvis Collectors

The SC-2 Control

Perspective and Activities:

Product Optimization for the SX Burner

SolvisLino 4 Product Launch

ErP Directive →Energy Label

The SolvisMax – An Ongoing Success Story

Incredibly economical

4 series

From 1997

The heating of the future

5 series

From 2000

Series award winner

6 series

From 2003

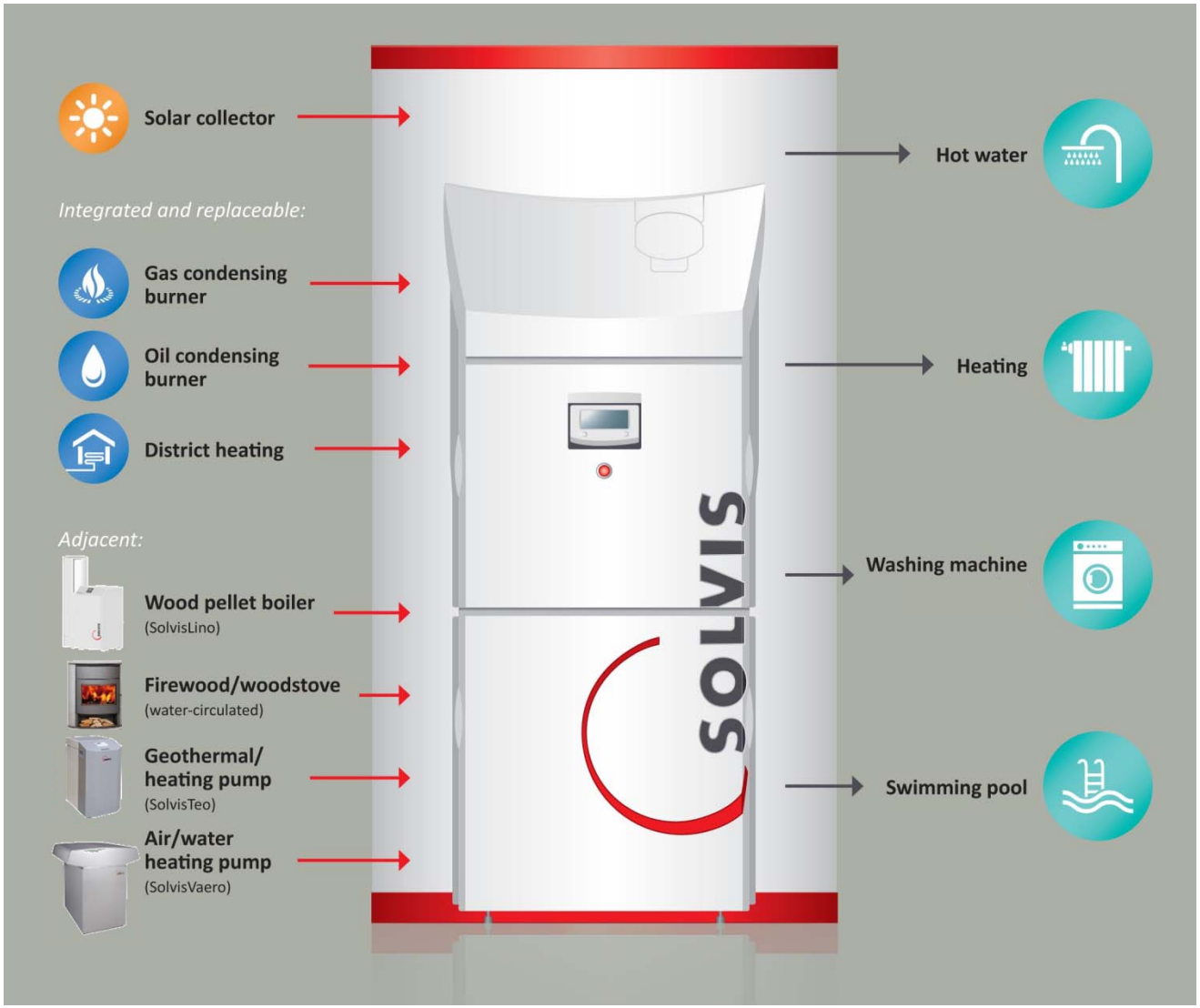
All-rounder

7 series

From 2015

- Increased solar yield
- Larger collector surface
- More efficiency/savings
- Better look/feel
- Increased modularity
- Clearer system
- Fewer variants
- Space saving, compact
- Easy to install “plug and play”
- Preassembled charging module
- Optimized storage tank piping
- Quality “Made in Germany”

SolvisMax – The All-Rounder



3 available storage tank sizes:

450, 750, and 950 litres

6 available storage tank versions:

- SolvisMax Gas
- SolvisMax Oil
- SolvisMax Fernwärme (with district heating)
- SolvisMax Solo
- SolvisMax Vaero
- SolvisMax Teo

SolvisMax – Front Hood and Side Parts

Solar can be installed either on the top or the side

Cover can be pulled forward

Ergonomically optimised higher position for the central controller

3-part front casing can be fitted without tools

High-quality plastic for a nice feel

Warp-resistant, easy-to-handle hood components

Easy to move side parts

3-part inserts for storage tank bleeder, electrical, fuel, condensate, etc.

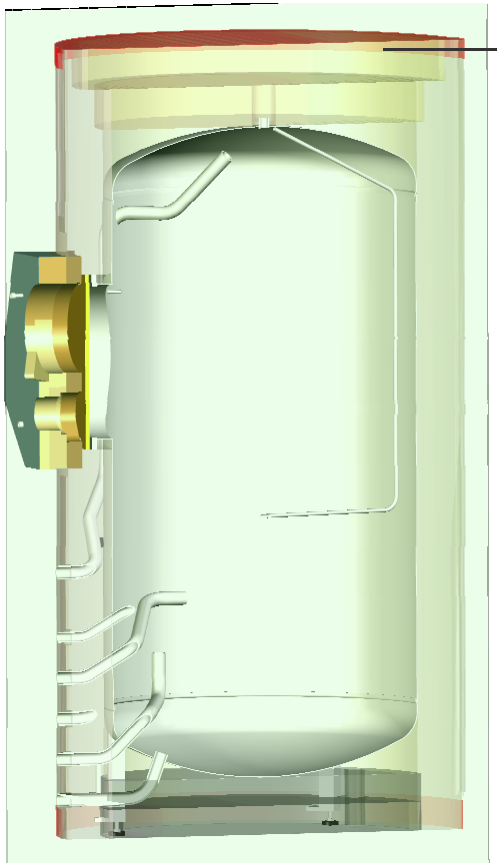
Defined passthrough points for heating and hot water piping; either on the left or right

To the left and right of the hood section there are grips for easy installation

SolvisMax – Storage Tank Sizes and Dimensions

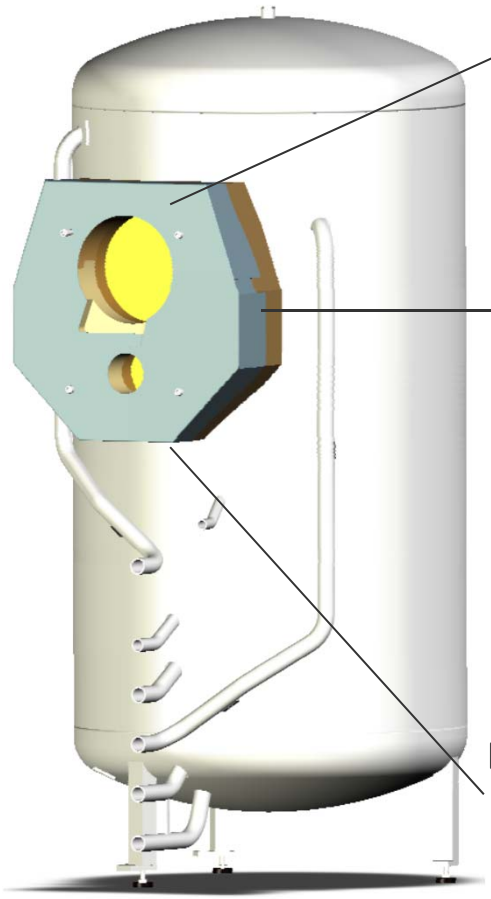
Technische Daten SolvisMax Solo					
Bezeichnung		**Einheit**	**457**	**757**	**957**
Nennvolumen		[Liter]	**450**	**750**	**950**
tatsächliches Volumen		[Liter]	470	718	909
Speicheraufteilung					
Warmwasserbereitschaftsvolumen		[Liter]	96	179	82/212/301
					Festlegung über Fühlerposition
Heizungspuffervolumen		[Liter]	22	34	34
Solarpuffervolumen		[Liter]	352	512	793/663/574
Leistungsdaten					
Behältermaterial		-	S235JR, außen grundiert,innen roh		
Anschluss Heizungs-Vorlauf/ -Rücklauf		-	Rohr 28 mm		
Anschluss Trinkwasser- kalt/ -warm			Rohr 28 mm		
maximaler Betriebstemperatur		[°C]	95		
maximaler Betriebsdruck		bar	3		
maximaler Volumenstrom Heizungs-Vorlauf/-Rücklauf		[m³/h]	2		
Abmessungen					
maximale Breite (inkl. Isolierung)	D	[mm]	870	1020	
maximlae Tiefe	T	[mm]	1380	1550	
maximale Höhe	H	[mm]	1800	1940	2330
Kippmaß ohne Isolierung	k	[mm]	1670	1760	2140
Durchmesser ohne Isolierung	d	[mm]	650	790	
Höhe Abgasanschlussstutzen	A	[mm]	1596		
Mitte Agasbogen bis Rückseite Isolierung	U	[mm]	1064	1210	
Mindestabstand vorne		[mm]	500		
Mindestabstand seitlich/ hinten		[mm]	300		

SolvisMax - Tank Insulation



Staged cover for avoiding chimney effects and minimizing storage losses

Aluminium lamination for easy handling during maintenance

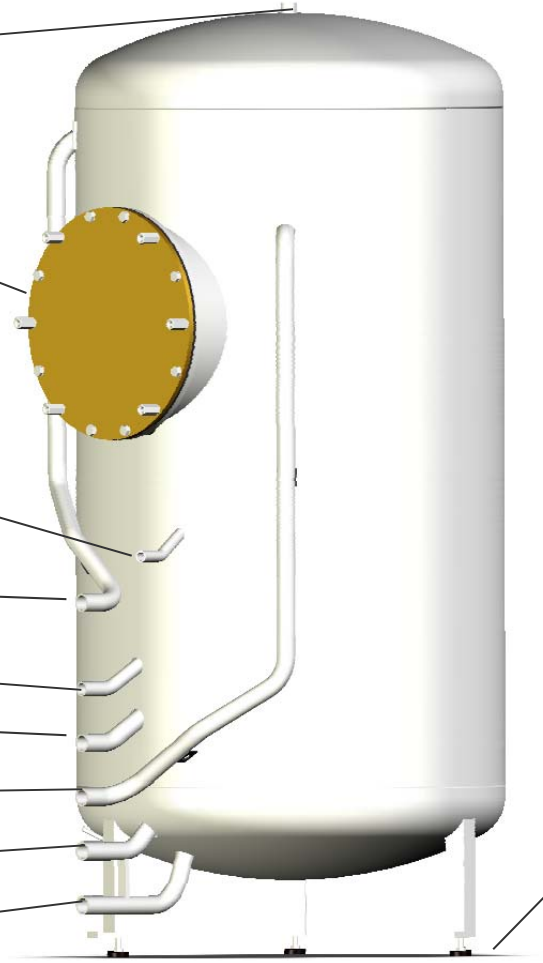


Wider design to ensure the tank flange is well insulated and to minimize heat losses

120 mm PE fleece for excellent insulation

Design in several parts for easy installation and maintenance

Storage Tank Setup – Location of the Storage Tank Connections



½" socket to aid transport

Universal flange opening for integrating the heat generator: Oil, gas, district heating and the Vaero & Teo heat pump charge flange

Integrated ½" storage tank bleeder

1" WWS flow

3/4" solar flow

1" heating return

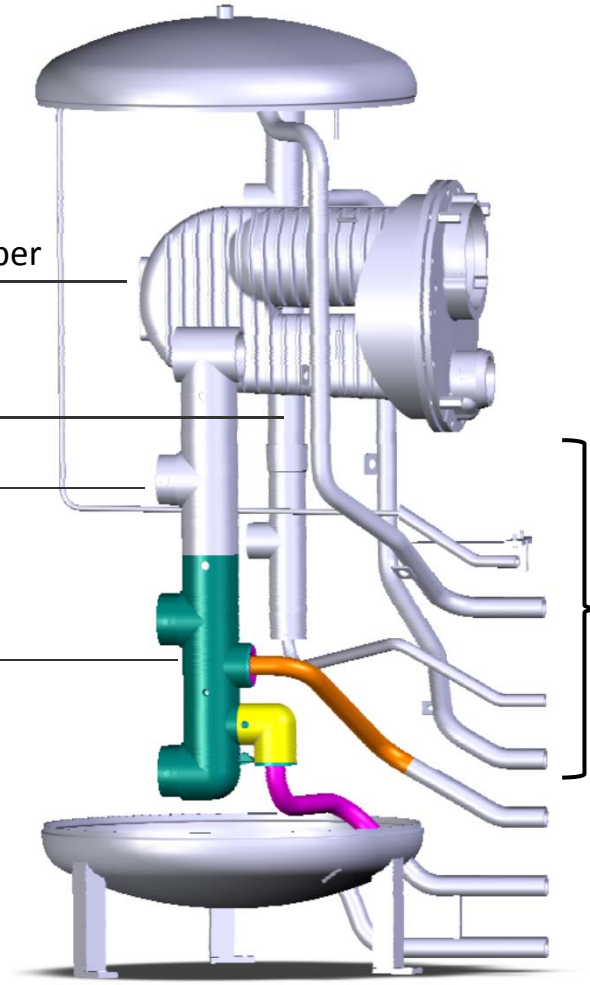
1" heating flow

1" WWS return

Storage tank bleeder or solar return or 1" return-SFB connection

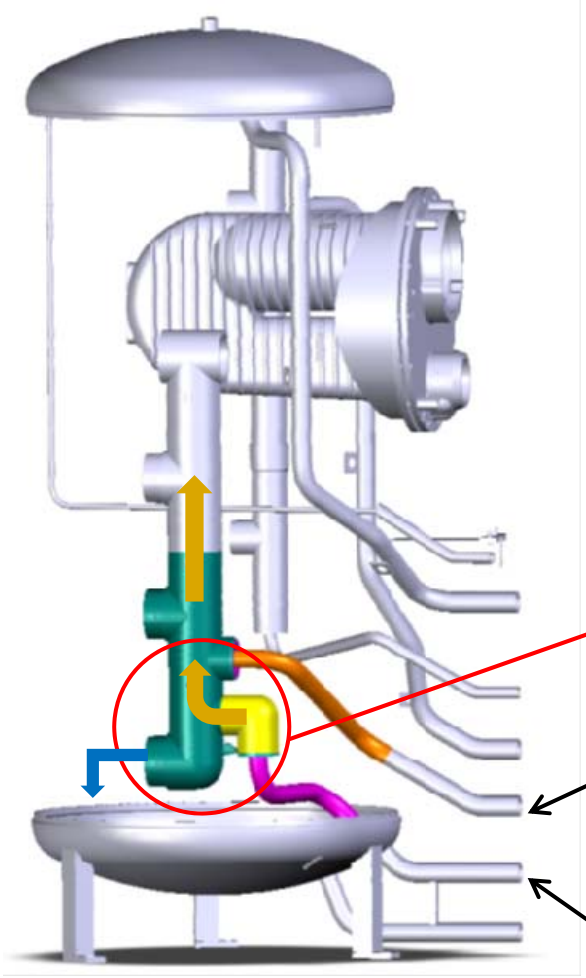
Height-adjustable storage tank feet for quick and easy alignment with a rubber underlay for heat and noise insulation.

SolvisMax – The Internal Storage Tank Components



The Combo Stratifier – something very complicated?

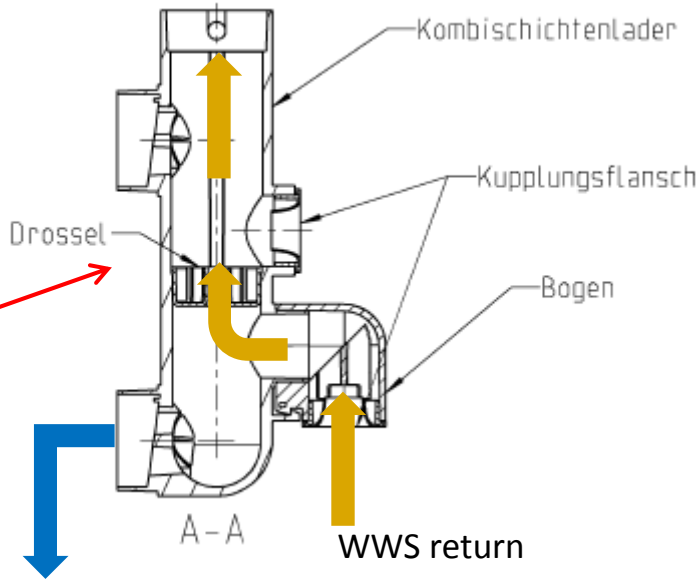
– No, the combo stratifier is pleasantly simple



Heatiing return

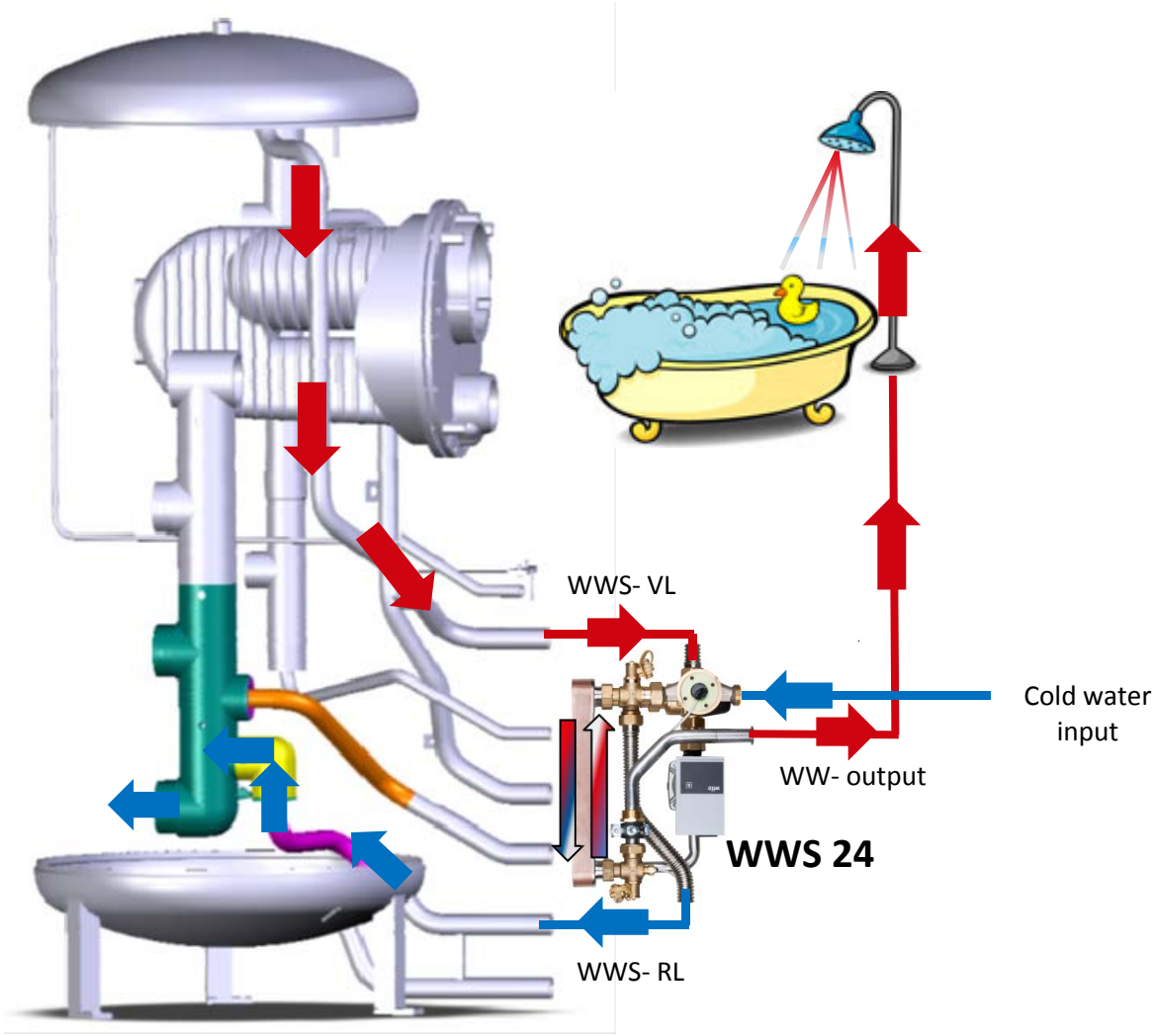
WWS return

Warm WWS return with low volume flow is stratified in pure circulation mode in the upper/middle storage tank area.



Cooler WWS return with high volume flow is stratified in the lower storage tank area for WW delivery.

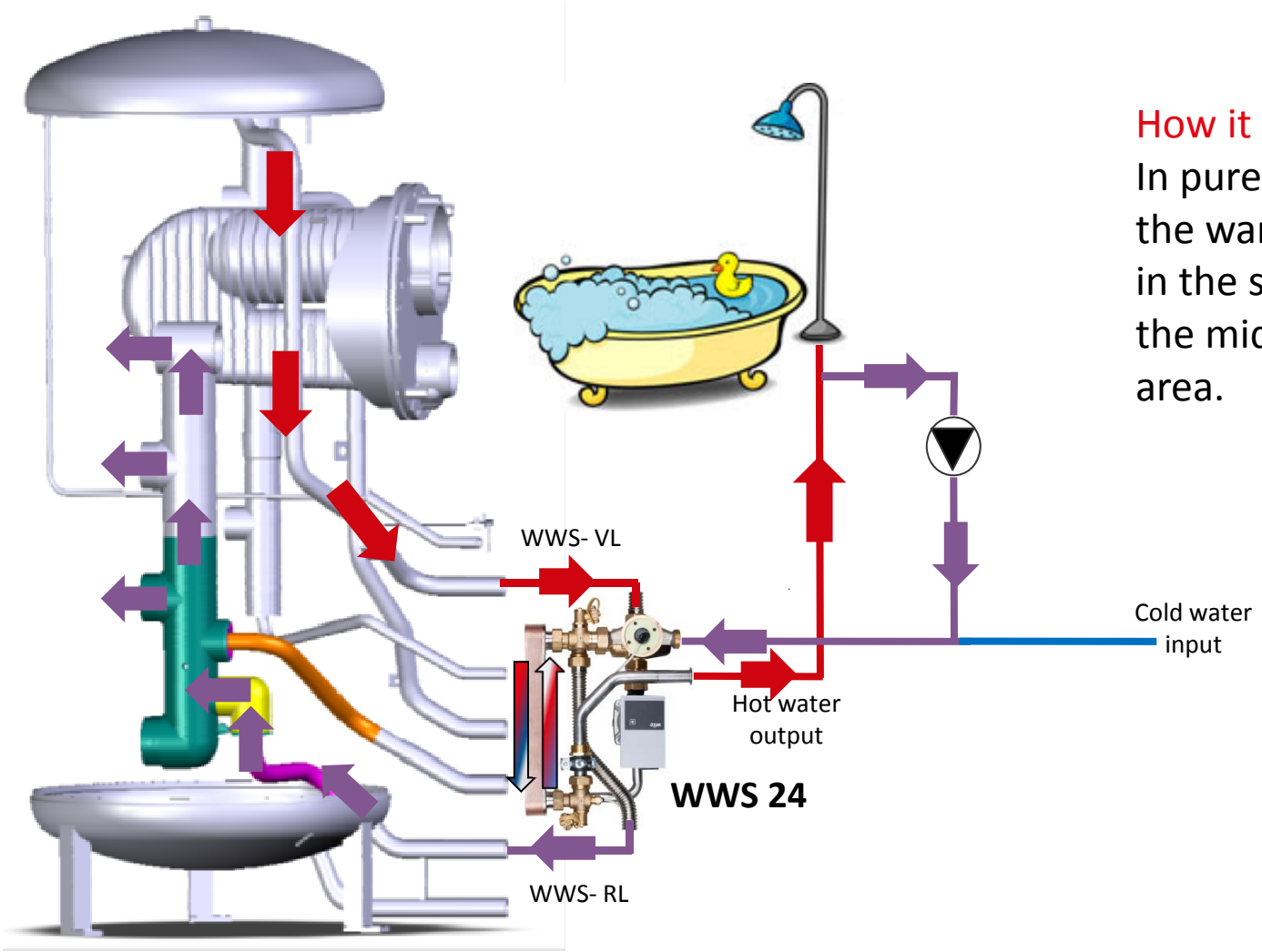
The combo stratifier – Hot water mode



How it works:

For hot water deliveries, the cold return is guided through the new lower outlet of the combo stratifier into the lower solar buffer area.

The combo statifier – Circulation mode



How it works:

In pure circulation mode, the warm return fluid rises in the stratifier and exits in the middle storage tank area.

The Combo Stratifier - Pleasantly Simple

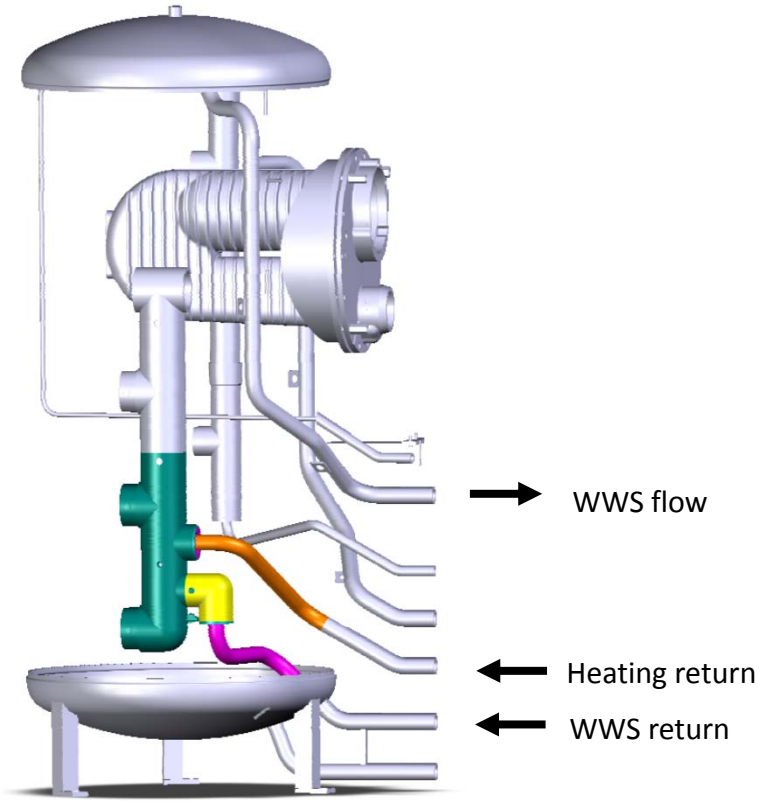
Advantages:

In circulation mode, the solar buffer remains cool.
This makes the collector 10 % more effective and
reduces the storage tank losses.

No additional mechanical or electrical parts required.

Easiest, safe installation.

Additional circulation station not required for smaller MFH.



Features of the SolvisMax:
Patented stratifier instead
of a switching valve

Storage Tank Setup – Location of the Storage Tank Connections

System benefits from the arrangement of the storage tank connections:

- ✓ The warm heating connection pipes (flow, return) and the solar flow do not feed through the lower solar buffer. As a result, the solar buffer remains cooler and the solar yield increases.
- ✓ Lateral position of the solar connections (flow, return) boost the solar buffer.
- ✓ All piping connections are positioned in the lower third of the storage tank. This allows the storage tank insulation to be penetrated in an energy optimised way. The positive result of this is that storage tank losses are avoided.
- ✓ Preventing pipe circulation and storage tank cooling through sophisticated downward piping.

SolvisMax- The system unit in Detail

Central controller in a warp-resistant console – can be pivoted for burner maintenance.

Like WWS-24, WWS-36 is fully contained in an insulation shell. Both stations are located below the cover.

The aluminium profile can be removed for maintenance and servicing work to provide optimum access to the individual components on the WWS!

Mains module with cover, together with cabling in separate rigid casing.

Easily accessible **solar station**

Light, stable, and unaffected by uneven flooring: The frame is attached to the storage tank.

Solar expansion vessel is outside of the charging module/front rack

The new system unit – In Detail

Consisting of:

- Metal frame with feet and connection for the SolvisMax storage tank
- Removable, multi-part casing complete with the Solvis logo
- Side pipe and cable lead-throughs in the casing
- SolvisControl 2 system controller with touch screen
- WWS hot water station
- Storage tank sensor cable tree
- Volume flow and temperature sensors
- Highly efficient and ErP-compliant circulation pumps
- Piping sets for heating and hot water, insulated in compliance with German Energy Conservation regulations (EnEv)
- Isolating equipment for maintenance of the plate heat exchanger
- EPP insulation shells for the pre-fitted stations
- Volume flow, pressure, and temperature sensors for speed control
- Documentation, operating instructions, startup and maintenance report

System unit variants:		
SolvisMax system	**WWS 24/36**	**without solar**
SolvisMax system	**WWS 24/36**	**SÜS**
SolvisMax Teo/Vaero	**WWS 24/36**	**without solar**
SolvisMax Teo/Vaero	**WWS 24/36**	**SÜS**

SolvisMax – Order Structure

1. Select the heat generator (integrated)

or

1. Select the heat generator (adjacent)

2. Select the SolvisMax (storage tank size)

3. Select the system unit

Select the system unit (only with WWS 24/36)

or

Select the system unit (with WWS 24/36 and SÜS)

SolvisMax – Installation Guard

Installation guard in original condition
in the form of a carry bag

Installation guard with zipper system, can be used
for all Solvis storage tank sizes

Lower level sections (pipe lead-through on the
storage tank) with mounting brackets

SolvisMax – WWS 24/36

How it works:

- Compact WWS with contraflow principle
- Convenient and completely hygienic drinking water heating
- SC-2 control records the hot water temperature and drinking water flow
- SC-2 uses speed control to control the high-efficiency pump in the primary heating circuit

This ensures a constant hot water tap temperature in which the ideal level of heat stratification is maintained in the stratified storage tank.

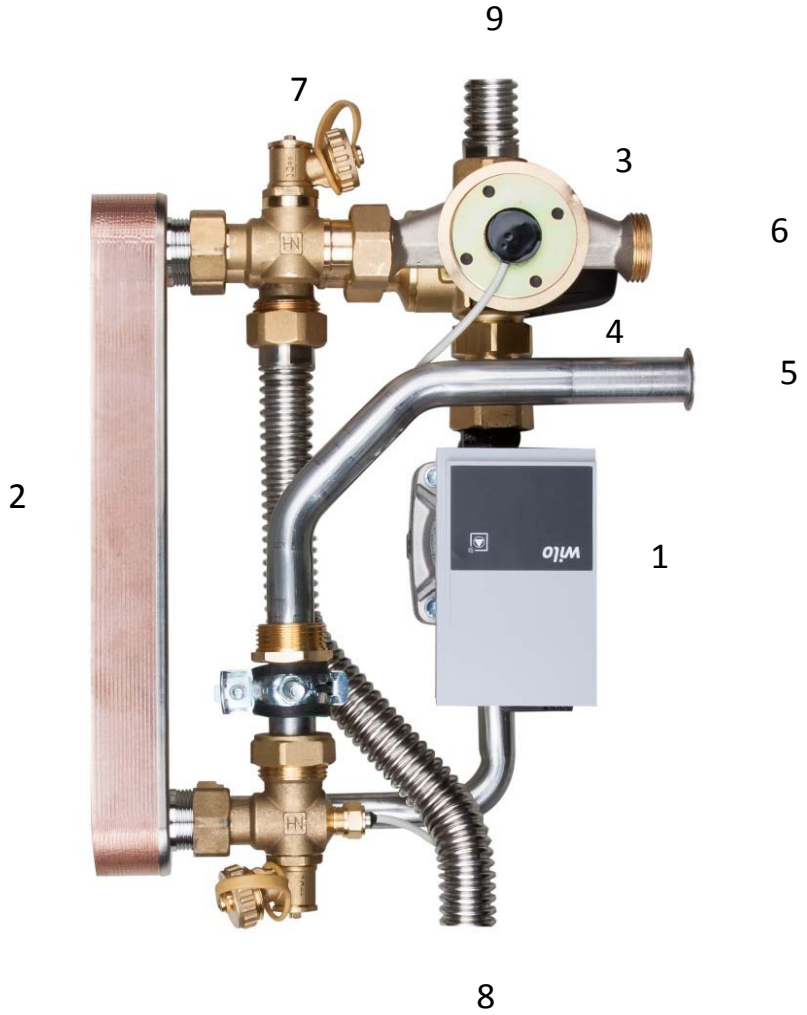
Benefits of the WWS 24/36 Hot Water Station:

- Consistent tap temperature thanks to speed-controlled high-efficiency pump
- Hot water temperature freely selectable from 38°C to 60°C
  Micro plate heat exchange made from stainless steel (1.044)
- Fully pre-assembled WWS (pump and temperature sensor fully pre-wired)
- Calcification protection thanks to the TMV
- Maximum access to all components for maintenance work
- High-quality EPP thermal insulation shell
- Installation set for HQC hot water available as an accessory

The WWS 24/36 – In Detail

Component overview:

1. High-efficiency heating pump
2. plate heat exchanger
3. Volume flow encoder
4. Thermal mixing valve
5. Drinking water, hot
6. Drinking water, cold
7. Drainage/flushing connections
8. Primary heating return
9. Primary heating flow



Note:

TMV factory settings for WWS 24/36: **60°C**

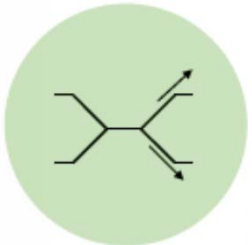
Max. temperature setting on the TMV for WWS 24/36: **65°C/70°C**

SolvisMax – WWS with the New Micro PWT

Conventional PWT

Narrow soldering, shorter service life

Micro plate heat exchanger



Wider soldering, longer service life

SolvisMax – WWS with the New Heat Exchanger

Advantages:

+ longer service life thanks to:

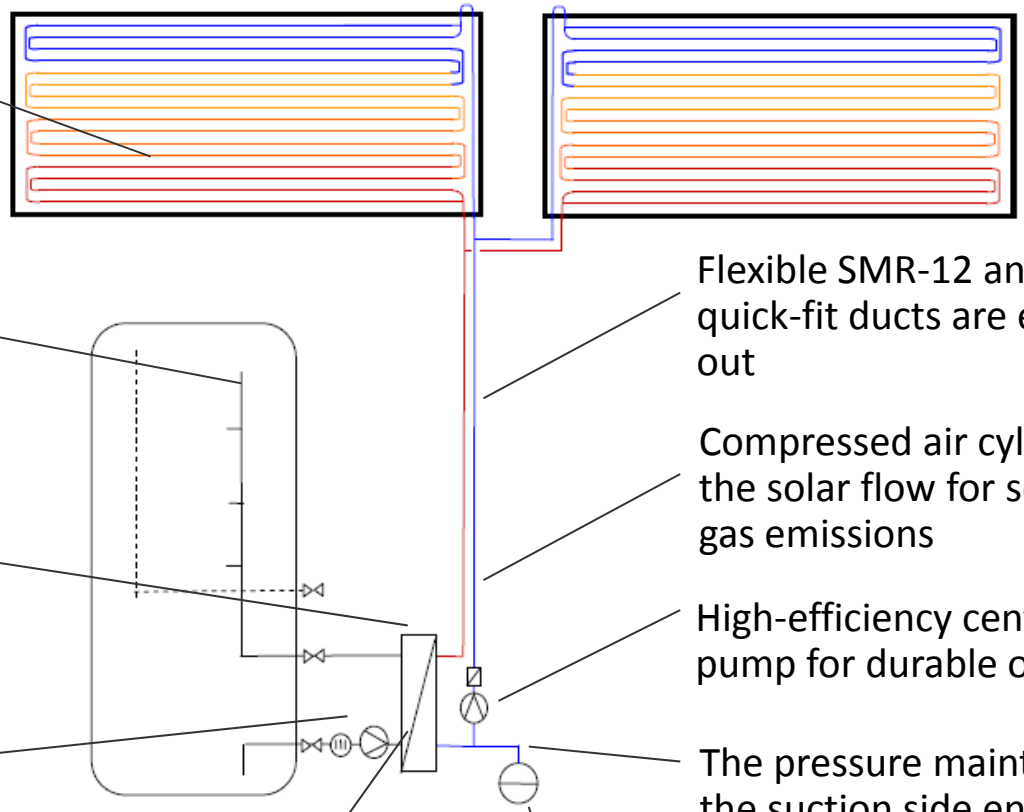
- More and larger soldering joints
- Smooth and precisely positioned above each other
- Steady flow
- Lower level of pressure loss
- Improved heat exchange
- Material made from 1.4404 stainless steel instead of 1.4401

  → More resistant to corrosion

  → Less susceptible to intercrystalline corrosion

  → Lower level of contamination and deposits

The New “Air Free” Solar Circuit – At a Glance



Collector hydraulics (double meander) ensure air is discharged quickly during startup and operation

Patented stratifier for optimum tank stratification and maximum efficiency

High-performance heat exchanger consistently provides the maximum degree of efficiency

Integrated solar yield measurements

Flexible SMR-12 and SMR-15 quick-fit ducts are easy to lay out

Compressed air cylinder in the solar flow for separating gas emissions

High-efficiency centrifugal pump for durable operation

The pressure maintained on the suction side ensures the system operates without any air entering

Solar station completely cased with a high-quality insulation shell

External expansion vessel for easy access for maintenance and checks

The New Solar Station – In Detail

Solar line connection
15 mm clamp ring + 12 mm reducer

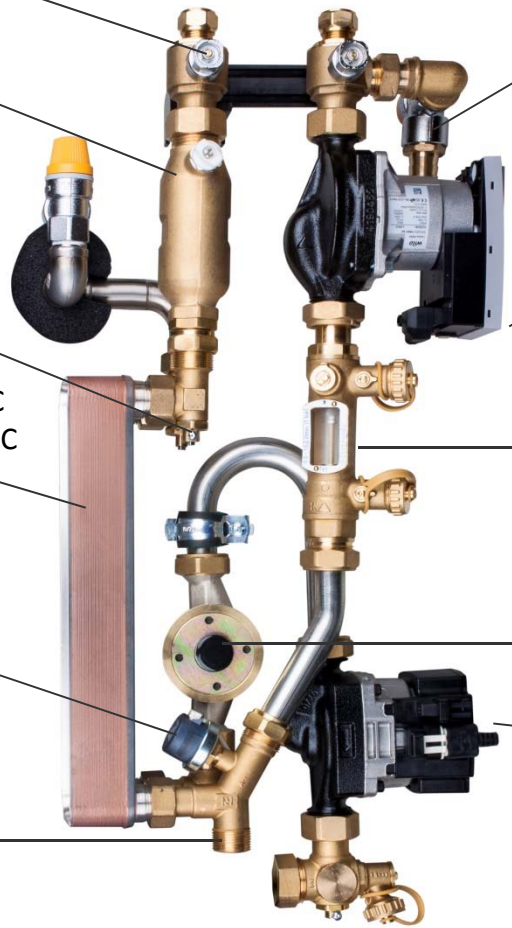
Solar flow compressed air cylinder
For deaeration

Solar flow temperature sensor

Solar heat exchanger
High-performance, durable, and compact
14 kW full performance: prim. 75/60°C, sec. 55/70°C
7 kW partial performance: prim. 65/33°C, sec. 25/60°C
Up to 25m² of collector surface

Solar circuit pressure monitor
System pressure displayed from SC2 and a warning when the pressure falls too low

Optimum pressure maintenance
Connection of the solar MEV on the suction side of the solar pump
-> Solar circuit is always overpressured in comparison to the environment
-> No unwanted air entry!



6 bar Solar safety valve

Solar pump
High-efficiency Wilo solar pump with max. 13 m delivery height and large control range for optimally adjusting the speed to the energy currently provided by the sun

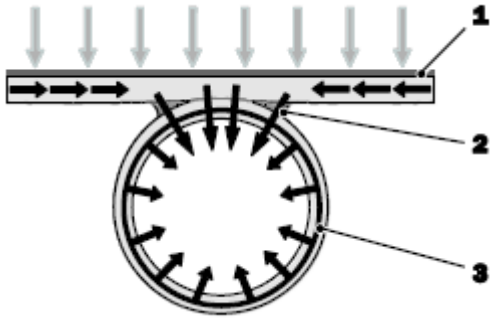
Flow indicator
With combined boiler filling and emptying valve

Integrated volume flow encoder
Recording of the solar yield

Secondary pump
High-efficiency Grundfos pump with a very large control range for optimum speed adjustment to the current power supply and a very low electrical power consumption of 2 to 23 W

SolvisFera Large - Surface Collector F-XX3-I-AR

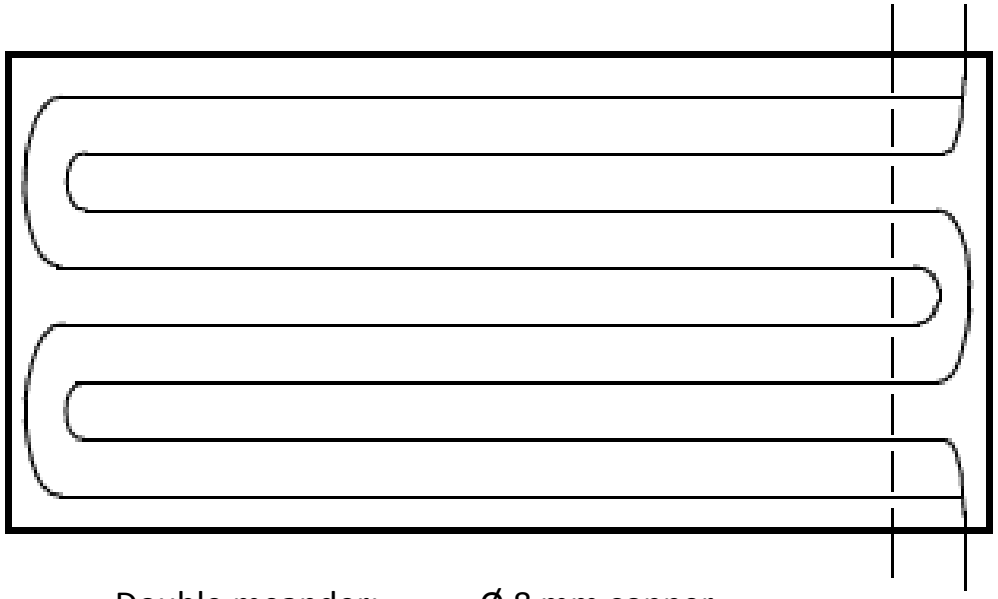
Solvis Fera I



Consisting of:

- Corrosion and weather resistant aluminium frames
- Large-surface absorber made from surface-treated aluminium
- Copper double meander, laser welded with absorber plate
- Rear heat insulation provided by 57 mm mineral wool
- Cover made from highly transparent, hardened AR glass

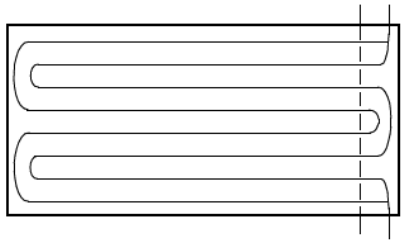
F-xx3-I-AR



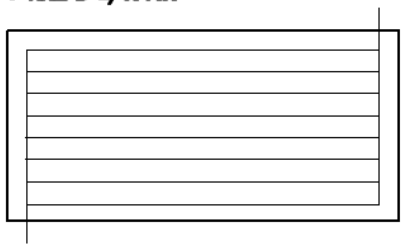
Double meander: Ø 8 mm copper
Collector connections: 12 mm (clamp ring)

SolvisFera Large-Surface Collector – Collector variants

F-xx3-I-AR



F-xx2-D-L/R-AR



F-xx2-S-AR

F-xx2-D-R/L-AR

Kollektorkenngrößen SolvisFera

Bezeichnung	Einheit	F-552 / F-553	F-652 / F-653	F-802 / F-803
Abmessung (Bruttofläche)	mm (m^2)	3793 x 1480 x 105 (5,61)	4735 x 1480 x 105 (7,01)	5677 x 1480 x 105 (8,4)
Aperturfläche*	m^2	5,16	6,45	7,74
Absorberfläche	m^2	5,25	6,58	7,91
Gesamtgewicht	kg	109	132	154
Gewicht ohne Scheiben	kg	69	82	94
CE-Zeichen	–	✔	✔	✔
Transmission des Glases	%	> 95		
Absorbertyp	–	Aluminium mit Miro-Therm®-Beschichtung (Absorption 95 %, Emission 5 %)		
Solar-Keymark-Register-Nr.	–	011-7S1750 F / 011-7S2482 F		
Solar-Keymark-Zertifikat	–	siehe ➔ http://www.dincertco.com		

** wirksame Fläche nach EN 12975*

Possible combinations of SolvisFera xx3-I-AR

SolvisFera xx3-I-AR

Kombinationsmöglichkeiten:

SolvisFera 553-I-AR: **Max. 4 pieces** side by side / one above the other and connected in parallel.
Max. collector gross surface: **22,44 m²**
Max. collector net surface : **20,64 m²**

SolvisFera 653-I-AR: **Max. 3 pieces** side by side / one above the other and Tichelmann connected.
Max collector gross surface : **21,03 m²**
Max. collector net surface : **19,35 m²**

SolvisFera 803-I-AR: **Max. 3 pieces** side by side / one above the other and Tichelmann connected.
Max. collector gross surface : **25,20 m²**
Max. collector net surface : **23,22 m²**

SolvisFera Large - Surface Collector F-XX3-I-AR – Hydraulic squemes

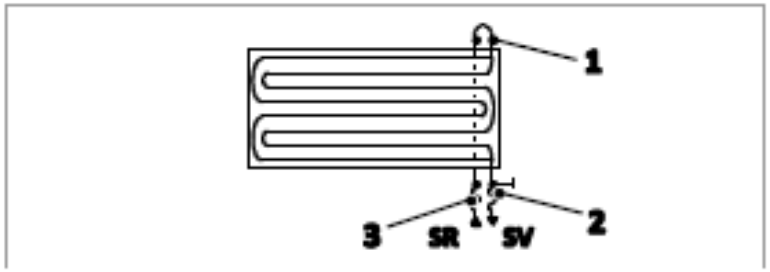


Abb. 7: SolvisFera Integral

1 flexibler Anschlussbogen
2 ES-SEN-12-C/F + BLS-SEN
3 flexibler Anschlussrohrsatz, z. B. ASS-RO-12 FX
SR Solar-Rücklauf
SV Solar-Vorlauf

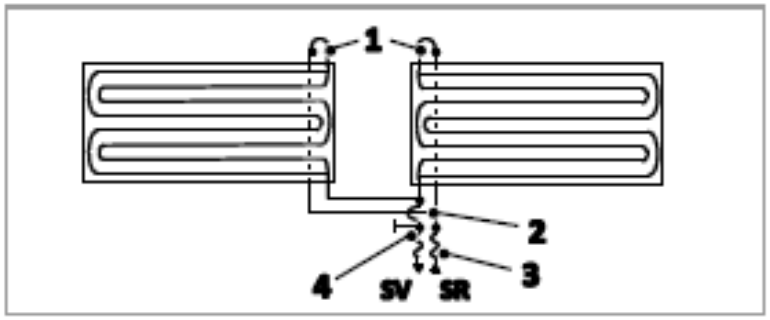


Abb. 8: SolvisFera Integral, Parallelschaltung (nebeneinander)

1 flexibler Anschlussbogen
2 VB-F-I-PN-12
3 flexibler Anschlussrohrsatz, z. B. ASS-RO-12-FX
4 ES-SEN-12-C/F + BLS-SEN
SR Solar-Rücklauf
SV Solar-Vorlauf

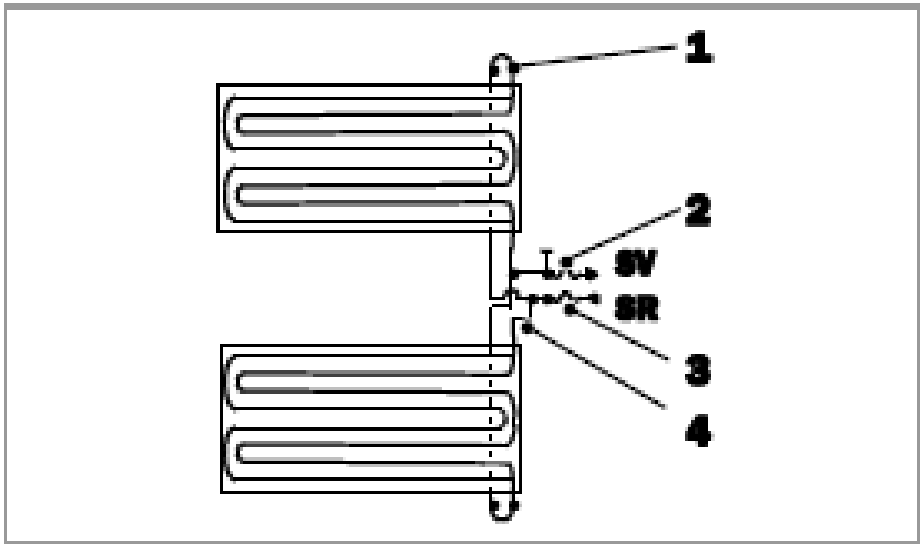
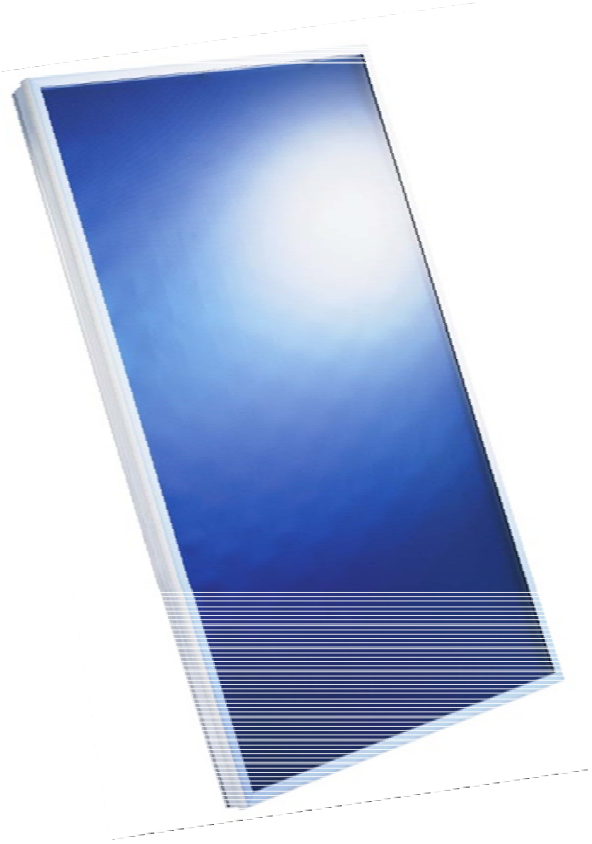


Abb. 9: SolvisFera Integral, Parallelschaltung (übereinander)

1 flexibler Anschlussbogen
2 ES-SEN-12-C/F + BLS-SEN
3 flexibler Anschlussrohrsatz, z. B. ASS-RO-12-FX
4 VB-F-I-P-UE-12
SR Solar-Rücklauf
SV Solar-Vorlauf

SolvisCala Compact Collector

Solvis Cala 254-AR
Now with AR Glass

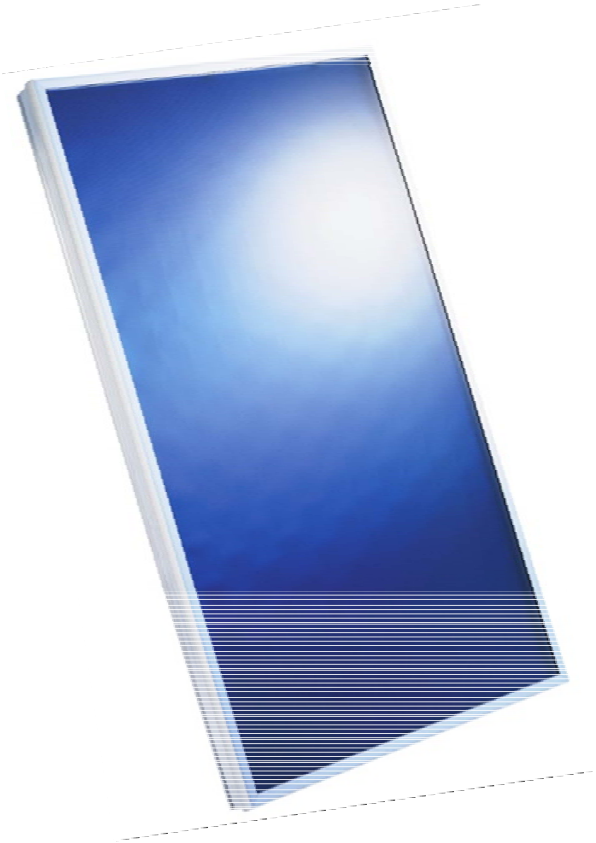


Consisting of:

- Corrosion and weather resistant aluminium frames
- Plate absorber made from surface-plated aluminium
- Copper solar pipe (double meander) with absorber plate laser welded
- Rear heat insulation provided by 57 mm mineral wool
- Cover made from highly transparent, hardened AR glass

Double meander: Ø 12 mm copper
Collector connections: 18 mm (clamp ring)

SolvisMax7- SÜS-
combination possibilities with the SolvisCala 254-AR



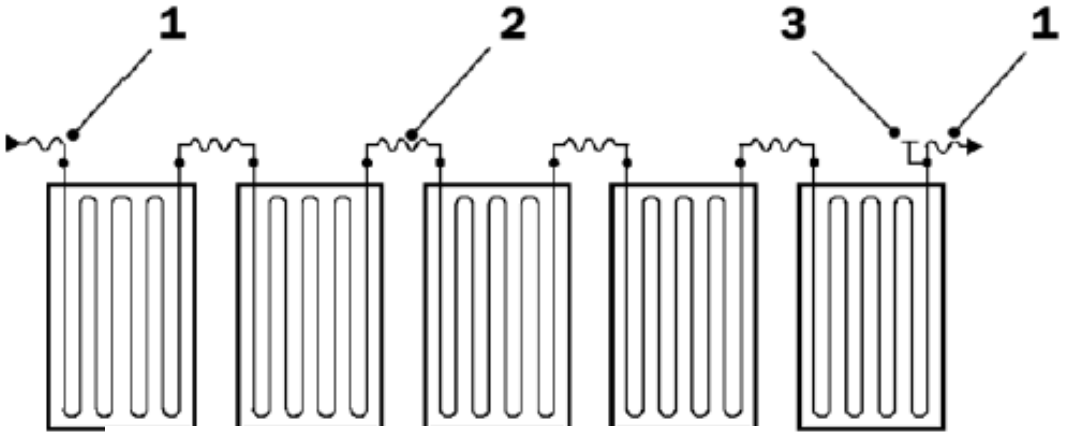
SolvisCala 254-AR

combination possibilities :

SolvisCala 254-AR: **Max. 5 pieces** side by side/one above the other and connected in series.
Max. collector gross surface: **12,80 m²**
Max. collector net surface: **12,00 m²**

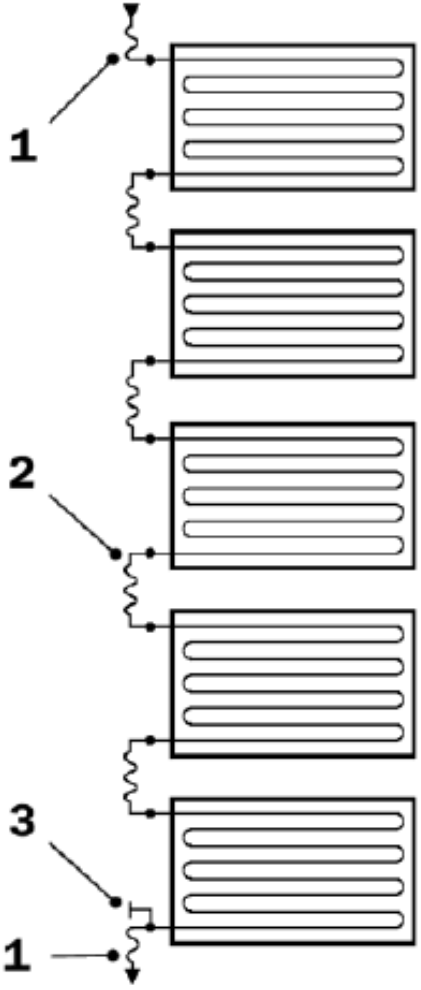
combination possibilities :
SolvisCala 254: **Max. 8 pieces (2 x 4 strings)** side by side and connected in parallel.
Max. collector gross surface: **20,48 m²**
Max. collector net surface: **19,20 m²**

Compact collector SolvisCala – how to connect



1 *ASS-RO-12-FX*
2 *VB-C-I-N*
3 *ES-SEN-12-C/F mit BLS-SEN*

SolvisCala 254-AR , series connection,
side by side or one above the other.

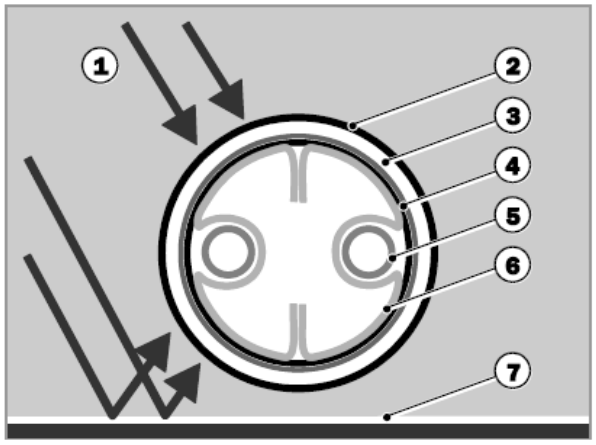


SolvisLuna evacuated tube collector

Solvis Luna

Consisting of:

- 12 double-walled single pipes (thermos flask principle)
- Highly selective coating on the inner pipes
- Evacuated tubes with inner copper piping
- Fully finished flat aluminium with a ceramic coating



1. Sunlight
2. Special gas tubes
3. Vacuum
4. Inner pipes with highly selective coating
5. Copper piping
6. Heating plate made from aluminium
7. Flat mirror with ceramic coating

SolvisLuna evacuated tube collector - how to connect

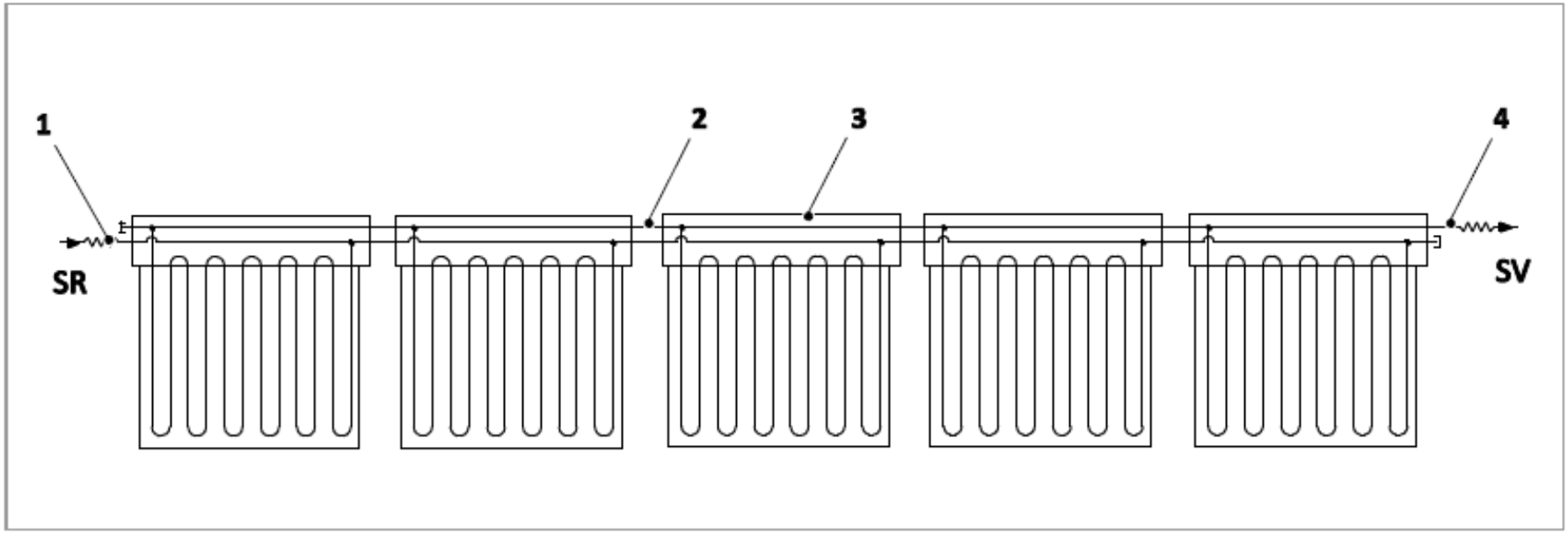


Abb. 5: Reihenschaltung von fünf SolvisLuna LU-233

SR	*Solar-Rücklauf*
SV	*Solar-Vorlauf*
1	*flexibler Anschlussrohrsatz ASS-RO-12-FX*
2	*flexible Verbindungen (liegen dem Kollektor bei)*
3	*Modul LU-233*
4	*Endsatz ES-SEN-12-LU + BLS-SEN*

SolvisMax 7 – SÜS – Combinations with evacuated tube collector SolvisLuna 233

SolvisLuna 233

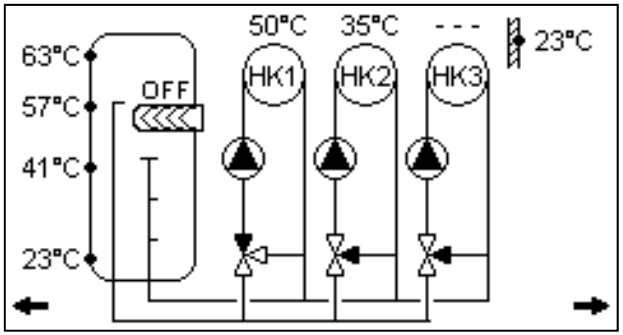
Combination possibilities:

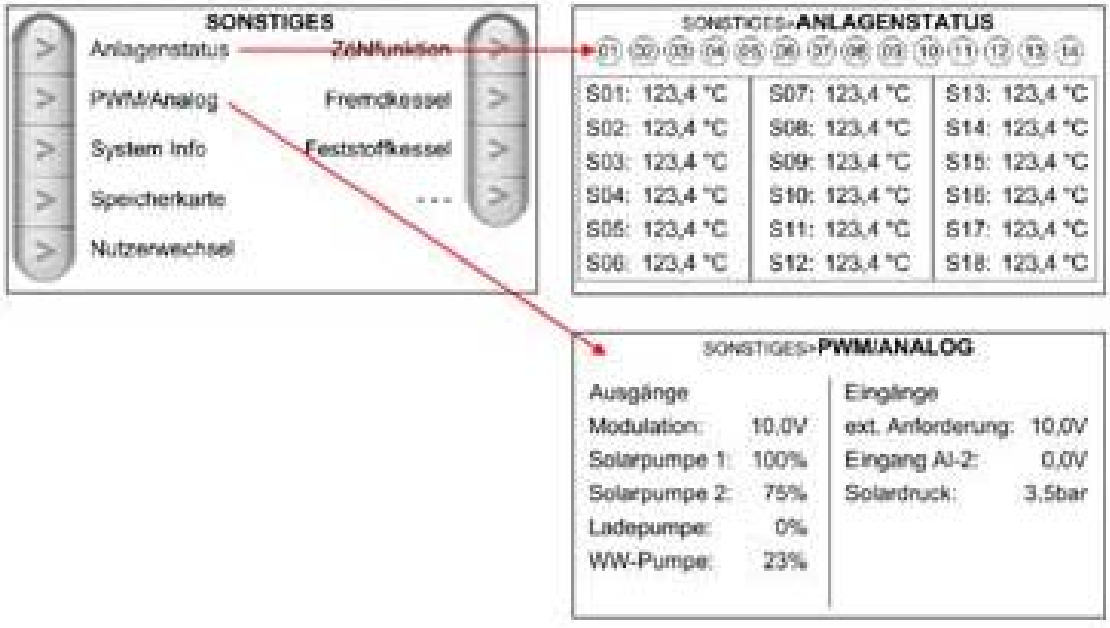
SolvisLuna 233: **Max. 5 pieces, side by side** and connected in series.
Max. collector gross surface: **11,80 m²**
Max. collector net surface: **9,65 m²**

SolvisMax – SC-2 Control

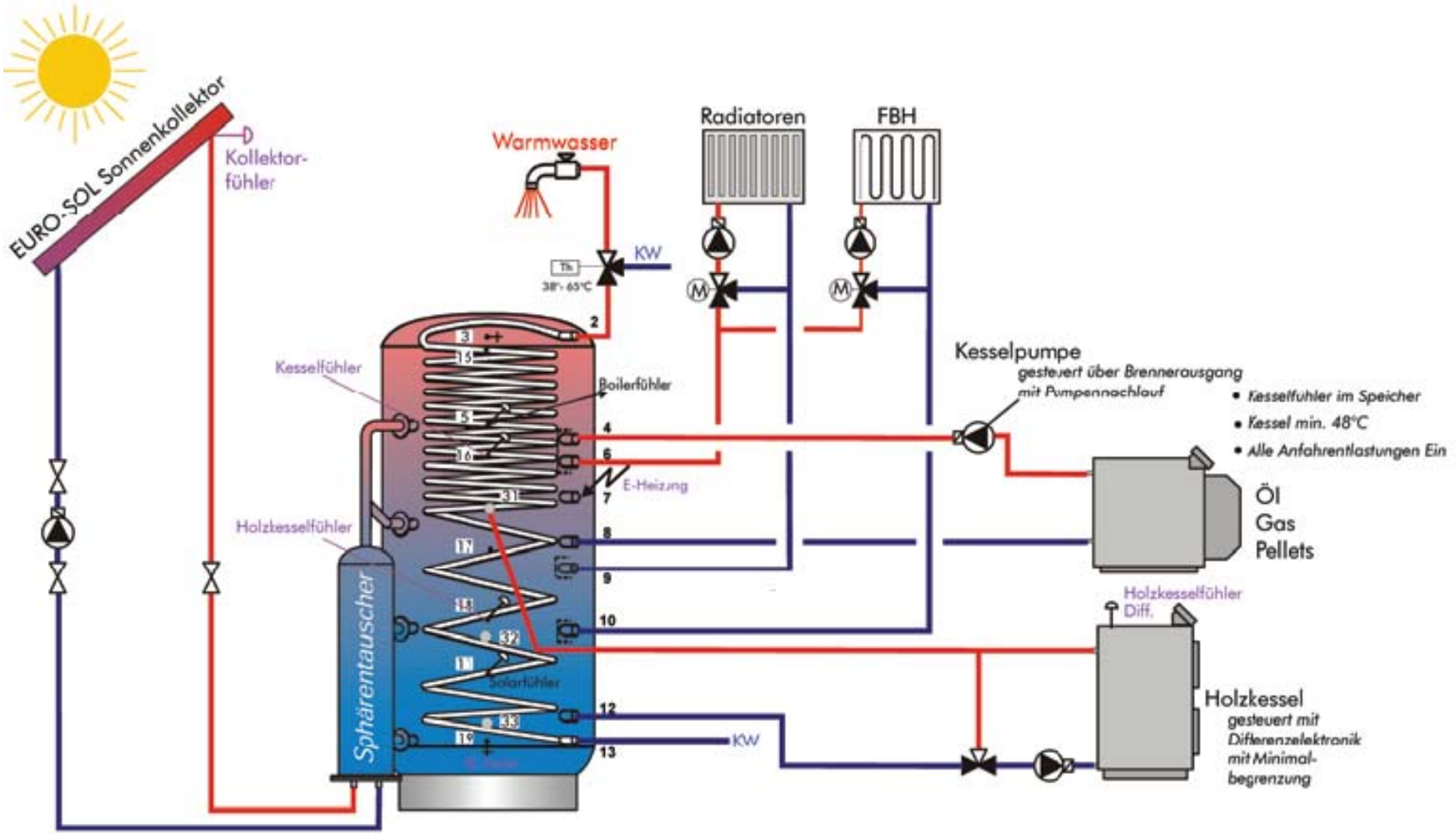
New:

- New start screen
- Dynamic collector start function
- System status with PWM outputs.
- Special E/W roof, SFB, mixed heating circuit functions





Sample of standard competitor‘s aplication



The 10 Solvis product advantages

- clean and quick installation → „plug and play“
- pre assambled charging module (SÜS and WWS)
- pipe connections on left or right side of the device
- integration of heat generator (Gas- and Oil)
- flexible combination with external heat generator
- compact design (requieres only a little space)
- one only system controller for all aplications
- intelligent remote controll by webbrowser
- perfect stratifiyng system for optimized benefit of solar energy
- hygienic hot water preparation by fresh water station for highest comfort

Product optimization for the SX burner

- **Error reader option**
- **Optimization on the burner flange**
- **Reduced heat loss**
- **More modulation**
- **Introduction of 10 kW output**
- **Improved maintenance positioning**
- **Improved cabling/plug connection on the firing system**

SX burner	10 kW	15 kW	20 kW	25 kW	30 kW
Modulation output	1.9 to 10	2.9 to 15	3.9 to 20	5 to 25	5 to 30
Modulation factor	~ 5	~ 5	~ 5	~ 5	~ 6
Objective: Market launch	04/2016	04/2016	04/2016	12/2015	12/2015

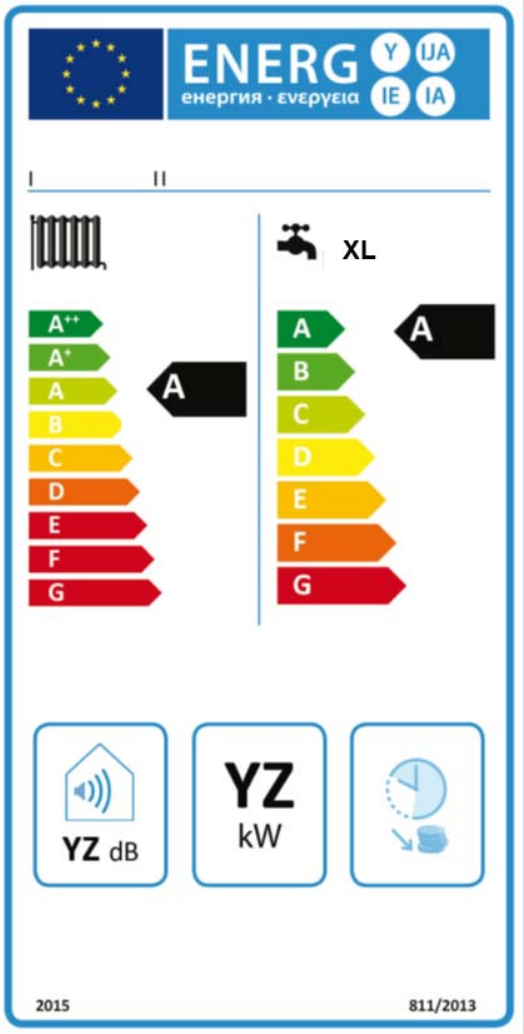
Boiler Performance and Types

- ✓ 4 output variants: 10, 15, 21, and 26 kW (from 2 basic types)
- ✓ No (simple) retrofitting capabilities between GS and VO
- ✓ 2 boiler variants: - “GS” with suction conveying (71 kg)
  - “VO-L” with large storage container (200 kg)
- ✓ Only a small extra logistical cost,
  because the delivery comes in multiple packages
- ✓ **Series start: September 2015**

SolvisMax – Energy Class → Efficiency Classes

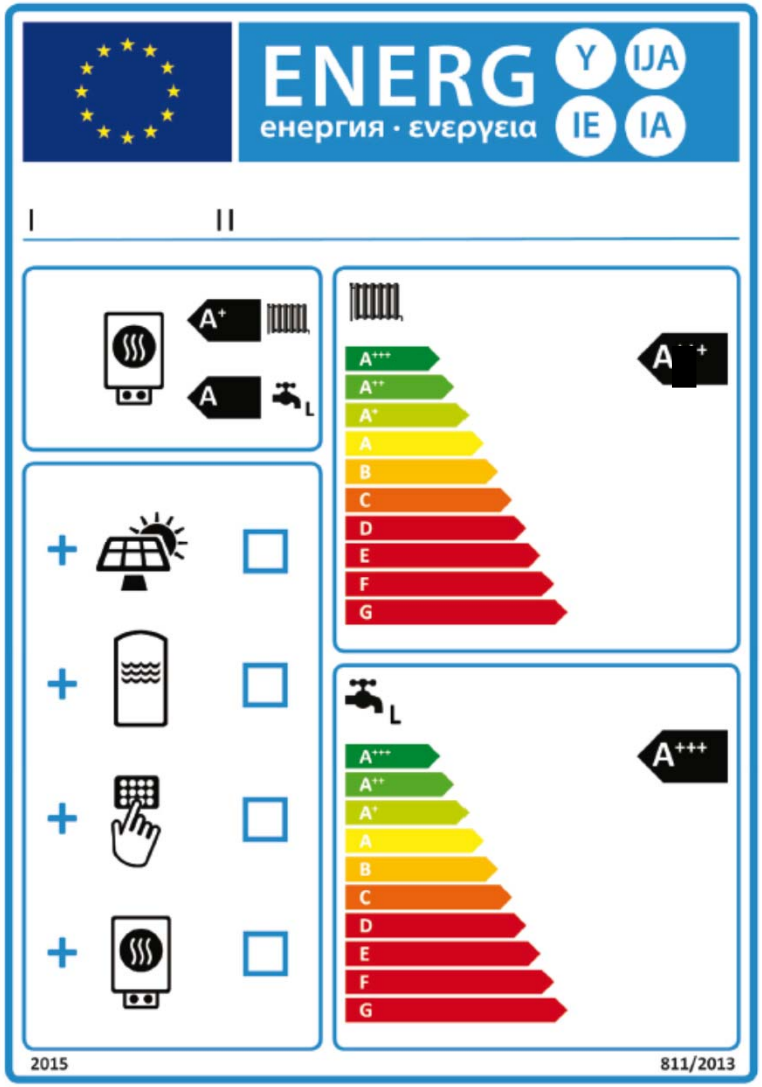
SolvisMax System: SX and SÖ-BW

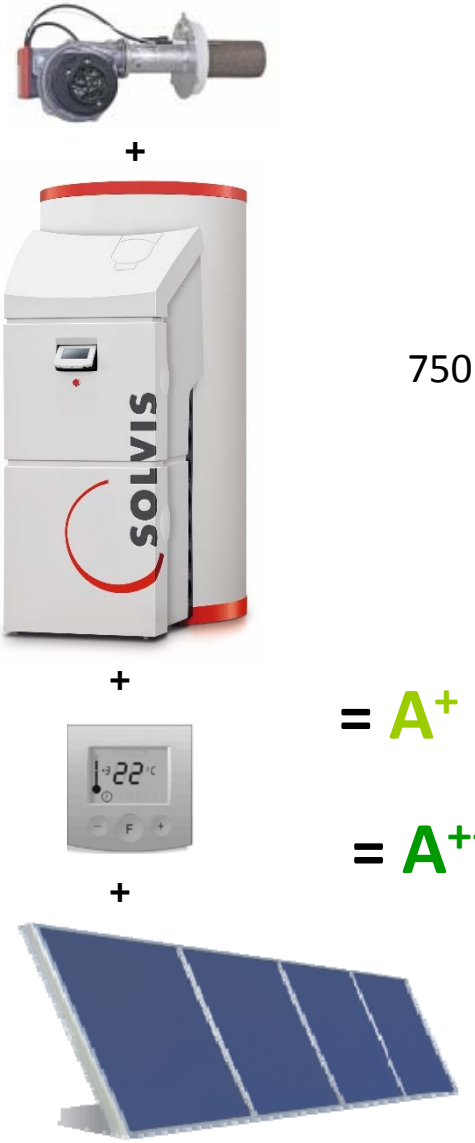
Efficiency class for hot water and heating mode **without solar**:



Combo label

Sample Bundle Package, SolvisMax Gas + Solar





20 kW SX burner

750 litre storage tank type

WWS-24

Room control

2 x Fera 553

= A^{+} for heating mod

= A^{+++} for hot water

Solvis – If you don‘t want a one-way-road

Quote a standard-device to your client?

- For a flexible choice of energy
- For changable energies
- For highest savings up to 50%
- For modular refitting
- For highest comfort
- For highest quality and longest warranties

Excellent: SolvisMax. The Champion.

Thank you for your attention!