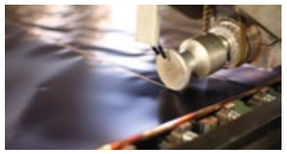
TABLE OF CONTENTS

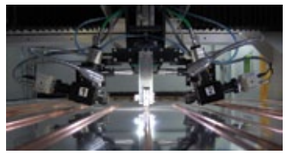
„Providing the highest quality product to our customers, based on the latest technical innovations, is the idea which is always with us in setting new goals and finding new solutions."

Leszek Skiba
the owner of HEWALEX

HEWALEX has been making solar collectors for more than 20 years. During this time, it has gained extensive experience in design and implementation of solar heating systems. The company currently employs about one hundred highly-qualified employees. HEWALEX products are based on proprietary and innovative solutions, using the newest methods and top-class materials.

HEWALEX is the first company in Poland to use advanced ultrasonic welding and laser welding technologies in the manufacture of solar collectors.





Hewalex is the oldest Polish manufacturer of solar technology equipment. For years, the company has safely maintained the position of the leader in sales of flat plate solar collectors in Poland.

At the same time, the company's products found customers in many European countries. High standards of cooperation and professionalism in dealing with partners allow for the continued expansion of the group of customers in Poland and abroad.

Przejrzysta Firma

Gazele Biznesu 2010

The company has implemented and maintains a Quality Management System in accordance with ISO standards.
What especially reflects our commitment to building the future is our membership in the European Solar Thermal Industry Federation (ESTIF), which actively promotes the use of solar renewable energy.

ESTIF European Solar Thermal Industry Federation


CERTYFIKAT

HEWALEX Leszek Skiba
ul. Wiosna 14a
PL-43-512 Bestwinka

ISO 9001:2008

Solar collectors are the foundation of HEWALEX's production profile.

The high level of commitment, technical expertise of its engineers, proprietary and innovative solutions made it possible to create a modern line of products which meet the highest quality and efficiency criteria.

The advantages of HEWALEX solar collectors include:


DIN CERTCO

CERTIFICATE

HEWALEX
ul. Wiosna 14a
43-512 BESTWINKA
POLAND

KS 2000 SP

Efficiency and functionality

High-class materials are being used in the construction of collectors, such as the absorber covered with a highly selective coating, structured solar glass with a high transmittance of solar radiation and a special thermal insulation. Linking these materials, the optimized design and the applied technologies give the result of above-average efficiency. A clear proof of this is the tests done at the SPF Institute in Rapperswil, Switzerland (report number: C824, C825, C1030).
These factors also provide great functionality, which consists of effective, maintenance-free operation and a wide range of applications.

Durability and safety

Collectors have been subjected to full tests of durability and safety, in accordance with the requirements of the EN 12975 standard. The positive result of these tests is confirmed by the Solar Keymark Certificate of Conformity.
This means that each collector, through the use of specialized materials and precise manufacturing, is capable of withholding mechanical and thermal loads and is resistant to corrosion. With great weather variability, it is important that collectors are always leakproof. Models with a harp construction automatically empty the heat transfer fluid in the event of critical conditions, which protects the system.
Reliable solutions, robust construction and strict quality control cause solar collectors made by HEWALEX to maintain their operating parameters over many years, which is confirmed by the long-term warranty period reaching even ten years.


DIN CERTCO

CERTIFICATE

HEWALEX
ul. Wiosna 14a
43-512 BESTWINKA
POLAND

KS 3000 SP

Design and comfort

The quality of HEWALEX products, apart from indisputable advantages in utility, also comes from their aesthetic value. This can be seen in the powder-coated housing and careful manual assembly of each unit.
Another advantage is the wide selection of installation locations and assembly methods. Regardless of whether the unit is installed on a steep roof or another surface which is positioned and sloped in any way, thanks to a wide range of fastening brackets, collectors effectively fulfil their heating functions. The possibility of sinking collectors into the roof slope, together with masking elements, supplement their aesthetic value.

Hewalex products - savings and high comfort of use.

ECOLOGY

The sun is an inexhaustible, widely available, completely clean as well as the biggest source of energy. The use of renewable solar energy is connected with the reduction of the consumption of fuel in traditional heating systems, based on diminishing deposits. Solar collectors are the best method of taking advantage of the energy of solar radiation.

Taking advantage of renewable energy, each of us contributes to protecting the natural environment.

SAVINGS

Sunrays, thanks to a solar energy system, are able to satisfy over 60% of the demand for energy necessary to heat tap water annually. Solar collectors are an inexpensive way to reap the benefits of renewable sources of energy. Many countries, supporting a universal use of renewable energy, offer sizeable co-financing and tax breaks for solar heating systems. In this way, they are becoming even more available and their use more cost-effective.

Solar collectors are an easy way to start saving at home.

FUTURE

Caring about the environment has a direct impact on our shared future. Solar collectors are an opportunity to guarantee a clean and friendly environment for future generations. HEWALEX's continuing priority is to implement innovative solutions and use the latest technology. This ensures the long-lasting operation and high efficiency of the manufactured equipment.

Modern solar collectors are the future of acquiring energy.

Solar heating systems – operation and selection

Principle of operation of a solar heating system

The solar heating system operates in the following way: solar collectors, usually placed on the roof, change solar radiation into thermal energy. With the help of a non-freezing heat transfer fluid, a non-hazardous glycol solution, circulating in the piping, energy is transferred to the heater. The heater is usually located next to the central heating boiler, in order to be able to heat water to any temperature required. In the heater, heat is transferred to tap water with the use of a heat exchanger. The cooled heat transfer fluid returns via piping back to the solar collectors and there it is re-heated - the cycle is closed. An appropriate automatic control system watches over the correct and maintenance-free working of the installation. A properly selected and constructed system is able to decrease hot water expenses up to 60% annually.

Selection of solar collectors

Small solar heating systems for hot water in single-family homes

A well-designed solar heating system should cover the thermal demand for heating water for all persons for whom it is intended – **90%** during the summer months, and **50%** during the entire year. This applies to moderate temperate climate zones.

To reach the intended demand coverage, **0.8 m² to 1.5 m²** of collector aperture area per person should be assumed. Additionally, when determining the capacity of the tank, a standard indicator of daily hot water use for one person of **40 – 60 L** of water at **55°C** should be adopted.

Small solar heating systems assisting building heating systems

The use of solar collectors to support the central heating system is recommended for buildings with low energy requirements which mostly use a low-temperature heating system, such as floor heating or wall heating. For instance, for a building with **30W/m²** average energy demand, **20% coverage** of annual demand can be achieved by installing respectively **0.05m²** of evacuated tube collector aperture area or **0.09m²** flat plate collector aperture area per unit surface area (**1m²**) of the building. This example applies to moderate temperate climate zones.

Solar heating systems for swimming pools

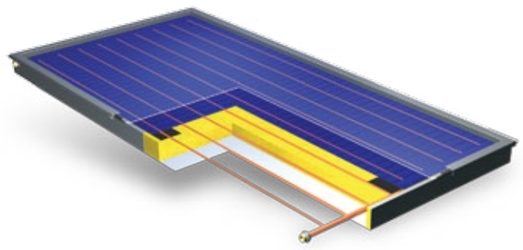
When selecting solar collectors for swimming pools, the total aperture area of the collectors should be estimated according to the following principle: outdoor pools (without evaporation reduction covers) 40 - 60% of the pool area, indoor pools (without evaporation reduction covers) 40 - 50%, outdoor and indoor pools (with evaporation reduction covers) 30 - 40%. Those guidelines apply to moderate temperate climate zones.

What is the life of a solar heating system?

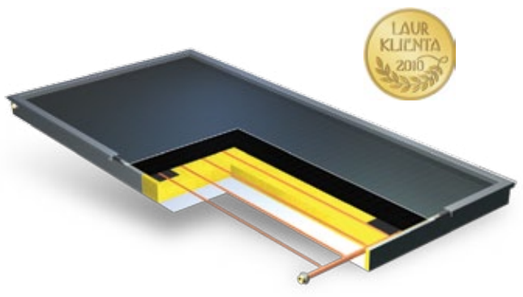
A correctly installed solar heating system can operate for a period more than 20 years.
The warranty provided by HEWALEX is respectively: 10 years for flat plate solar collectors, 5 years for evacuated tube solar collector, 5 years for solar water heaters and 2 years for the pump and control unit.

1. FLAT PLATE SOLAR COLLECTORS SERIES KS2000

KS2000 series flat plate solar collectors are designed to heat tap water, support the central heating system and heat swimming pool water.



KS2000 series collectors consist of a copper ultrasonic-welded absorber or an aluminium laser-welded absorber, each with a single harp piping system. The absorber plate is covered with a highly selective black chrome coating, with 96% absorption and 10% emission (SP) or a highly selective titanium-nitride-oxide coating, with 95% absorption and 5% emission (TP, TP AC). The absorber cover is made of tempered glass with a structured surface, characterized by high transmittance of solar radiation: 91.6%, class U1. All this is inside an aluminium cover with anticorrosion protection and internally insulated with mineral wool for solar applications. Solar collectors are made in the universal, gray-brown colour RAL7022 (additional marking „L") or a natural aluminium colour.



Thanks to the harp construction of the absorber, each KS2000 series collector has the automatic emptying function for the heat transfer fluid during overheating, protecting the system against damage, as well as low flow resistance, resulting in lower power consumption by the circulation pump. In addition, the collectors in this series are provided with four connections, factory equipped with permanent sealing o-rings, thanks to which they can be mounted both vertically and horizontally.

KS2000 series flat plate solar collectors have been subjected to full energy and quality testing procedures and received the SOLAR KEYMARK quality mark. The annual energy efficiency of a KS2000 TP collector is one of the highest among all flat plate collectors tested in accordance with the SOLAR KEYMARK procedure at the SPF Institute in Rapperswil, Switzerland.

SOLAR KEYMARK

SPF Solartechnik: Prufung Forschung

Name: Solar collector	KS2000 SP (KS2000 SLP)	KS2000 TP (KS2000 TLP)	KS2000 TP AC (KS2000 TLP AC)
Catalogue number	**11.21.00 (11.22.00)**	**14.21.00 (14.22.00)**	**14.40.00 (14.41.00)**
Solar Keymark certificate	No. 011-7S180 F	No. 011-7S181 F	- [1]
Aperture surface (aperture), m^2	1.815	1.815	1.815
Gross surface area (total), m^2	2.09	2.09	2.09
Optical efficiency (relative to the aperture),%	81.1	80.2	80.2 [1]
Heat loss coeff. a_1 (relative to the aperture), W/m2K	4.46	3.80	3.80 [1]
Heat loss coeff. a_2 (relative to the aperture), W/m^2K^2	0.0096	0.0067	0.0067 [1]
Glazing: solar glass / structured / tempered glass	+ / + / +	+ / + / +	+ / + / +
Absorber sheet / piping material	copper / copper	copper / copper	aluminium / copper
Highly selective absorber coating	black chrome	Titanium-nitride-oxide	Titanium-nitride-oxide
Absorber piping layout	harp	harp	harp
Dimensions, mm	2019 x 1037 x 89	2019 x 1037 x 89	2019 x 1037 x 89
Enclosure material	aluminium	aluminium	aluminium
Weight (no liquid), kg	39	39	38
Liquid capacity, litre	1.1	1.1	1.1
Working pressure, bar	6	6	6
Recommended flow rate litre/-h	90	90	90
Pressure drop (Propylene glycol, Tm=20°C, 60 L/h), Pa	400	400	400

[1] Collector during the testing phase in the SOLAR KEYMARK system. The above coefficients are subject to minor adjustment.

Meaning of letter symbols in the product name:

S — black chrome absorber coating,

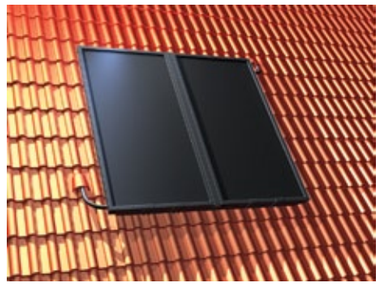
T — titanium-nitride-oxide absorber coating,

L — collector enclosure covered with powder coating, colour RAL 7022 (gray-brown),

P — tempered solar glass with a structured surface,

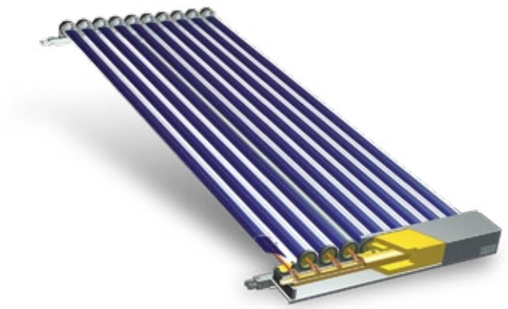
AC — aluminium absorber with copper piping.

The basic set size is two KS2000 series flat plate collectors. When combining solar collectors into one battery, it is recommended to include a maximum of 8 collectors. The number of batteries in a system is unlimited.
KS2000 solar collectors may be mounted on the roof, wall, terrace or on the ground around the building. Universal HEWALEX mounting handles are used for this purpose. Types of handles are shown on page 18.



2. EVACUATED TUBE SOLAR COLLECTORS

KSR10 evacuated tube collectors, like flat plate collectors, are used for heating tap water, swimming pool water and especially to support the building heating system.



The absorber, covered with a highly selective TiNOX Classic titanium oxide coating, with 95% absorption and 5% emission, is placed in a single solar glass tube, additionally covered with an anti-reflective coating, with the highest transmittance of solar radiation – more than 95%. The element connecting evacuated tubes is a thermally insulated distributor with a special system of channels, placed in an aluminium powder coated housing with a gray-brown colour (RAL 7022). The collector has two connections with an external 3/4" thread, and is factory fitted with permanent sealing O-rings. Elements of the collector are shipped separately, which greatly simplifies the process of assembly and transport.

Thanks to the use of direct flow technology, the KSR10 evacuated tube solar collector has a much higher efficiency rating than collectors with double wall tubes and with the so-called heat pipe, and one of the highest efficiency ratings among tube collectors in all of Europe. In addition, the innovative solution of the distributor gives the collector the ability to automatically empty the heat transfer fluid during overheating, protecting the solar heating system against damage.

KSR10 series evacuated tube solar collectors have been subjected to full energy and quality testing procedures and received the SOLAR KEYMARK quality mark. Their annual energy efficiency rating is one of the highest among all evacuated tube solar collectors, tested in accordance with the SOLAR KEYMARK procedure at the SPF Institute in Rapperswil, Switzerland.

The collector elements include:

- 10 evacuated tubes with built-in absorbers,
- a compact circuit distributor in an aluminium casing - colour RAL 7022,
- collector frame made of aluminium sections in colour RAL 7022, interconnected using aluminium connectors and stainless steel screws.

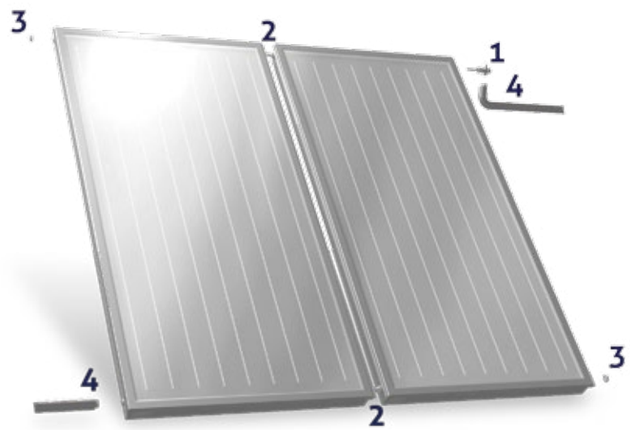
Name: Solar collector	KSR10	2xKSR10
Catalogue number	**15.11.00**	**15.21.00**
Solar Keymark certificate	No. 011-7S1106 R	
Aperture surface (aperture), m^2	1.014	2.028
Gross surface area (total), m^2	1,823	3,646
Optical efficiency (relative to the absorber/aperture), %	85 / 78	85 / 78
Heat loss coeff. a_1 (relative to the absorber/aperture), W/m^2K	1.38 / 1.27	1.38 / 1.27
Heat loss coeff. a_2 (relative to the absorber/aperture), W/m^2K^2	0.0013 / 0.0012	0.0013 / 0.0012
Glass tube: solar glass / anti-reflective treatment	+ / +	+ / +
Absorber sheet / piping material	copper / copper	copper / copper
Highly selective absorber coating	TiNOX Classic®	TiNOX Classic®
Absorber piping layout	parallel / +	parallel / +
Dimensions, mm	2130 x 856 x 116	2130 x 1720 x 116
Enclosure material	aluminium	aluminium
Weight (no liquid), kg	30	60
Liquid capacity, litre	1.8	3.6
Working pressure, bar	6	6
Recommended flow rate, litre/h	60	120
Pressure drop (Propylene glycol, Tm=20°C, 60 L/h), Pa	623	-

The basic size of a set includes **2 KSR10 evacuated tube solar collectors** on a common base structure. We recommend connecting **max. 5 single KSR10 collectors into 1 set** (one 2xKSR10 double collector + three KSR10 single collectors).
KSR10 solar collectors may be mounted on the roof, wall, terrace or on the ground around the building. Universal HEWALEX mounting handles are used for this purpose. Types of handles are shown on page 21.

3.CONNECTION SETS FOR SOLAR COLLECTORS

Connection sets make it possible to group collectors and then connect these groups with piping.

CONNECTION SET FOR FLAT PLATE COLLECTORS (ZPKS)



The ZPKS Set allows for connecting a system of max. 8 flat plate collectors to the piping.

Name of the kit	ZPKS-1	ZPKS-2	ZPKS-3	ZPKS-4	ZPKS-5	ZPKS-6	ZPKS-7	ZPKS-8
Product number	47.01.01	47.01.02	47.01.03	47.01.04	47.01.05	47.01.06	47.01.07	47.01.08
Number of KS2000 collectors in a battery	1	2	3	4	5	6	7	8
Kit elements (catalogue number):								
• Pipe Union KS3/4" (42.01.00), pc.	-	2	4	6	8	10	12	14
• Plug KS3/4" (43.01.00), pc.	2	2	2	2	2	2	2	2
• Sensor housing with vent (44.01.00), pc.	1	1	1	1	1	1	1	1
• Pipe half-union KS3/4" G1/2" (40.20.20), pc.	2	2	2	2	2	2	2	2

CONNECTION SET FOR EVACUATED TUBE SOLAR COLLECTORS (ZPKR)

The ZPKR Set allows for connecting a system of max. 5 evacuated tube collectors to the piping.

Name of the kit	ZPKR
Product number	47.02.01
Number of KSR10 collectors in a battery	1-5
Elements:	
• Three-way KSR adapter with a vent (46.02.01), pc.	1
• Pipe half-union KS3/4" G1/2" (40.20.20), pc.	2
• Sensor housing KSR, pc.	1

CONNECTION SET ZPP

A 0.8 m connection allows for leading a section of the piping from the battery of collectors under the roof slope. The connection is made of a stainless steel elastic tube finished with a GZ 3/4" pipe union and a GW 3/4" pipe half - union and equipped with an O-ring. Its thermal insulation is resistant to high temperatures. Each set contains two KS 3/4" elastic connections.

Connection set ZPP

no. 40.11.00

CONNECTOR SET ELEMENTS

KS 3/4" PIPE UNION - consists of a stainless steel compensator with two GW 3/4" hexagonal nuts. Included in the ZPKS connection set.

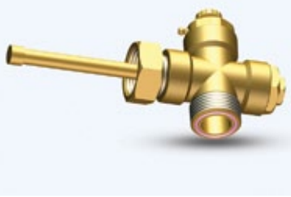
KS 3/4" pipe union

no. 42.01.00

KS 3/4" PLUG - made in the form of GW 3/4" hexagonal brass nut. Included in the ZPKS connection set.

KS 3/4" plug

no. 43.01.00



SENSOR HOUSING WITH VENT - housing is made of a copper sleeve with a brass head. It has a GW 3/4" hexagonal nut, manual vent and a GZ 3/4" connector with O-ring sealing. Included in the ZPKS connection set.

Sensor housing with vent

no. 44.01.01

KS 3/4" G 1/2" PIPE HALF-UNION - consists of a GW3/4" brass hexagonal nut and a GZ 1/2" threaded element. Included in the ZPKS and ZPKR connection sets.

KS 3/4" G 1/2"

no. 40.20.20

THREE-WAY KSR ADAPTER WITH A VENT - made entirely out of brass, it has a GW 3/4" hexagonal nut, a manual vent and a GZ 3/4" connector with O-ring sealing. Included in the ZPKR connection set.

Three-way KSR adapter with a vent

no. 46.02.01

O-RING MVQP70 - made of silicone, resistant to high temperatures and the effects of glycol and steam. It is used for sealing piping connections 3/4" in collector sets. As a replacement part, it is available in packs of 10 pieces.

Oring MVQP70

no. 73.00.10

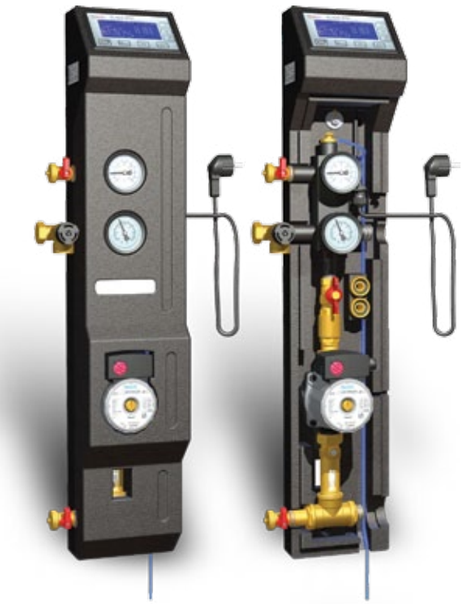
HEWALEX

4. ZPS PUMP CONTROL UNIT

The ZPS pump and control unit is used to operate solar heating systems with flat plate and evacuated tube collectors made by HEWALEX. It merges the advantages of common single and double-suction pumps, because it contains all the parts of a double-suction unit, such as a circulation pump, a solar controller and air separator, yet it is reliable and easy to assemble, which is characteristic of single-suction pumps.

The pump and control unit is an element of each HEWALEX solar heating system. In addition, optionally with KOMPAKT 300HB heater, it is factory-connected to the heater, which improves its aesthetic appeal and significantly reduces the time of its installation.

There are three versions of the ZPS unit available, differing by the flow meter used, chosen depending on the number of collectors in the system.



Name	Pump and control unit		
Catalogue number	**71.31.06**	**71.31.16**	**71.31.28**
Flow meter scale, L/min	1.5 – 6	4 – 16	8 – 28
Number of supported KS2000 collectors	1 – 3	4 – 10	6 – 18
Number of supported KSR10 collectors	1 – 5	6 – 15	9 – 27
Solar Controller Type	G422-P03	G422-P03	G422-P03
Operating current, 1 ~ 230 V, mA	9	9	9
Temperature sensors (4 pcs.)	NTC10kOhm	NTC10kOhm	NTC10kOhm
Heat transfer fluid circulation pump	WILO Star-ST 15/6	WILO Star-ST 15/6	WILO Star-ST 15/6
Power consumption 1 ~ 230 V, W			
• gear I	29 – 41	29 – 41	29 – 41
• gear II	36 – 54	36 – 54	36 – 54
• gear III	43 – 63	43 – 63	43 – 63
Smooth adjustment of pump's rotational speed	+	+	+
Air separator	+	+	+
Safety valve 6 bar	+	+	+
Manometer / analog thermometer	+ / +	+ / +	+ / +
Check valve / shut-off valves	+ / +	+ / +	+ / +

G422-P03 CONTROLLER

Each pump and control unit is equipped with a GECO G422-P03 solar controller, which functions as an independent control unit, intended to adjust the work of the solar heating system all year round. The use of complex software solutions guarantees the optimal and safe work of typical solar heating system setups, as well as their maintenance-free operation and comfort of use.
The application of touch sensor buttons makes the controller a cutting-edge solution, encountered so far in the most advanced electronic devices.

Specific features of the GECO 422-P03:

- a selection of 17 different installation configurations
- time schedules for the circulation pump, swimming pool pump and heating devices
- smooth adjustment of pump's rotational speed / with an indication of pump's gear
- simultaneous control of the work of up to two boilers and solar collectors
- heating priority selection (hot water, central heating, swimming pool, second heater, etc.)
- manual control of devices supported by the controller
- blocking heating devices by the work of solar collectors
- night cooling function for the solar collectors
- automatic temperature disinfection (1 x week; activated)
- holiday function (unit switches off the remaining heating devices, activated)
- function of heat discharge from the reservoir
- collector anti-freeze / overheating function
- the option of selecting the type of collector: flat plate, tube
- built-in real-time clock
- saving operating status and all controller settings during power failure
- large and bright LCD display
- graphical visualization of equipment operation
- identifying the instantaneous power of collectors
- measurement of average power (stats: daily, weekly, monthly, yearly)
- energy meter (stats: global, daily, weekly, monthly, yearly)
- adjustable display brightness
- screen saver time settings
- sensor sound alarm / possible to switch off
- keyboard sounds
- built-in SMPS
- rated power consumption without supported devices < 2 W
- menu in multiple languages

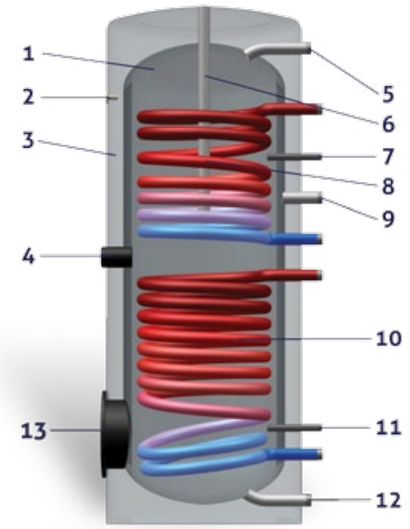
Product name	Catalogue no.
G422-P03 Controller (without sensors)	74.02.01
Temperature sensor 1.5 m silicone (NTC10 kOhm)	74.10.05
Temperature sensor 3.0 m (NTC10 kOhm)	74.30.00
Cable, 18.5 m	74.18.05

5. HEATERS AND ACCESSORIES

HEWALEX HEATERS WITH TWO EXCHANGERS

Description:

1. Enameled tank
2. Stick-on thermometer
3. Insulation + imitation leather jacket
4. Electric heating connector pipe
5. Hot water outlet
6. Magnesium anode
7. Temperature sensor sleeve
8. Heat exchanger for the boiler
9. Circulation
10. Heat exchanger for solar collectors
11. Temperature sensor sleeve
12. Cold water inlet
13. Inspection flange



HEWALEX heaters with two heat exchangers are designed for heating tap water in households using heat from solar collectors and heat from the central heating boiler. They are made with carbon steel and are provided with double protection against corrosion in the form of a protective enamel layer and a magnesium anode, subject to periodic replacement. Thermal insulation consists of a rigid polyurethane foam layer which minimizes heat loss. Heaters are clothed with a soft imitation leather jacket and covered with a black plastic cover, thanks to which they have an attractive design. All connection nozzles and measuring nozzles are located along one vertical line. Each heater is equipped with an analog thermometer, an inspection hole and a nozzle allowing for insertion of an electric heating element, which can be automatically supported by the solar controller.

The KOMPAKT 300HB heater is an expanded version of the standard heater with a capacity of 300 litres. Its side walls are factory-connected with the ZPS pump and control unit, as well as with the hot water and solar loop safety units, which consist of an expansion tanks and safety valves. Thanks to such integration, the assembly of the solar heating system is fast and simple. Moreover, such an installation takes up less space in the boiler room than the standard solution of separate elements and has a sleek modern look.

Heater type	VF-200-2	VF-300-2S	KOMPAKT 300HB
Catalogue number	**86.20.00**	**86.30.00**	**86.31.02**
Volume, L	200	300	300
Diameter / width, mm	540	600	600 / 848
Height, mm	1473	1834	1834
Height tilted, mm	1530	1892	1892
Weight, kg	85	106	145
Size of connections:			
• hot water	GZ 3/4"	GZ 3/4"	GZ 3/4"
• top / bottom exchanger	GZ 1"	GZ 1"	GZ 1"
• circulation	GZ 3/4"	GZ 1"	GZ 1"
• electric heating element	GZ 6/4"	GZ 6/4"	GZ 6/4"
Bottom / top exchanger:			
• heating surface, m^2	0.95 / 0.7	1.55 / 0.80	1.55 / 0.80
• exchanger volume , L	6.4 / -	10.8 / -	10.8 / -
Standby losses kWh/24h	2.3	2.1	2.1
Permissible working pressure, bar	6	6	6
Magnesium anode	yes	yes	yes
Warranty, years	5	5	5[1)]

[1)] Applies to the heater only

ELECTRIC HEATER 2KW

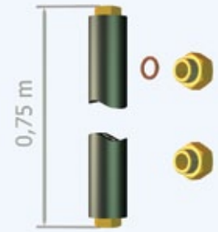
Electric heater 2 kW

no. 80.10.10

Electric heater is used to heat water in heaters. It is an alternative method of heating water to the required temperature in the absence of sufficient amount of thermal energy from the remaining sources. The heating element has a capacity of 2 kW, an adjustable thermostat with protection against excessive temperature and a 6/4" male thread. It is supported by the G422-P03 solar controller, which is an integral part of the ZPS pump and control unit. The electric heating element is not a part of solar collector sets and is not a standard accessory for the heater.

HEATER CONNECTION SET

The heater connection set is designed for connecting the pump and control unit to the selected heater.



Heater connection set

no. 51.04.02

HEATER PROTECTIVE ANODE

Heater protective anode

no. 83.30.25

Product name		Catalogue no.
Heater protective anode HEWALEX	VF-200-2	83.30.25
Heater protective anode HEWALEX	VF-300-2s, KOMPAKT 300HB	83.30.20

6. HANDLES AND FLASHINGS – SELECTION

The available handles and flashings provide secure mounting of solar collectors on a roof with any slope, covered with any material used on the European market. In addition, they make it possible to install the collectors in any place around the building. All handles and flashings have been designed in accordance with the standard guidelines determining the permissible load and the materials used in their construction are fully corrosion-resistant. The main division of handles and flashings for collectors has been made on the basis of the three slope groups of the mounting surface, i.e. 0-20°, 20-30°, 30-60°.

Surface slope	30° ÷ 60°	20° ÷ 30°	0° ÷ 20°	>30°
Type of fixture	Universal Handle	Adjusting Handle	Universal Constrution	Flashing
Intended use	- roofs, walls of buildings, terraces, land, support structures			- slanted roofs
Type of roofing material	- ceramic tile, corrugated sheeting, metal shingles, asphalt shingles, etc.			- ceramic tile

1. 1. Handles for KS2000 flat plate collector sets

The required number of the various handles								
Surface slope	30° ÷ 60°		20° ÷ 30°		0° ÷ 20°		>30°	
Name of fixture	Universal Handle		Adjusting Handle		Universal Constrution [1)]		Flashing	
Name cont.	KSOL-2 (KSAL-2)	KSOL-1 (KSAL-1)	KSOL-2	KSOL-1	KSOL-2	KSOL-1	F65163	F65164
Catalogue number	21.42.02 (21.32.02)	21.42.01 (21.32.01)	21.52.02	21.52.01	22.22.02	22.22.01	27.01.00	27.01.02
2 collectors	1	-	1	-	1	-	1	-
3 collectors	1	1	1	1	1	1	1	1
4 collectors	1	2	1	2	1	2	1	2
5 collectors	1	3	1	3	1	3	1	3
6 collectors	1	4	1	4	1	4	1	4
7 collectors	1	5	1	5	1	5	1	5
8 collectors	1	6	1	6	1	6	1	6

[1)] If installing the construction directly on the ground, see description of the KSOL UNIVERSAL CONSTRUCTION.

KSOL (KSAL) UNIVERSAL HANDLE

The Universal Handle is used to attach flat plate collectors on sloped roofs with any kind of roofing and slope greater than 30 degrees. The handle is made of aluminium bars connected with each other using aluminium attachments and creating a platform for the collectors. The remaining elements of the handle are made of galvanized carbon steel (KSOL) or stainless steel (KSAL). All elements of the handle are powder coated in the colour of the collector, i.e. RAL 7022. The exception is the stainless steel hooks, which are not painted.

KSOL-2 universal handle

no. 21.42.02

KSOL-1 universal handle

no. 21.42.01

The basic size is the KSOL-2 Universal Handle **for two collectors**, which can be extended to **max. 8 collectors** in one set, by choosing the **KSOL-1** Universal Handle for each additional collector.

KSOL ADJUSTING HANDLE

The Adjusting Handle is a type of universal handle, designed for a sloped roof with an angle of 20° to 30°. The Adjusting Handle differs from the universal handle in that its upper hooks have an adjustable height in order to ensure that the angle of the collectors' inclination is greater by 10° than the slope of the roof. Hooks for adjusting handles are made of galvanized carbon steel. KSOL handles are powder coated with RAL 7022 colour.

KSOL-2 adjusting handle

no. 21.52.02

KSOL-1 adjusting handle

no. 21.52.01

The basic size is the **KSOL-2 Adjusting Handle for two collectors,** which can be extended to **max. 8 collectors** in one set, by choosing the **KSOL-1 Adjusting Handle** for each additional collector.

KSOL UNIVERSAL CONSTRUCTION

The Universal Construction is made for mounting collectors on roofs with a slope of less than 20° to the horizontal plane, on hard horizontal surfaces, such as, for example, on the ground, and the vertical walls of buildings, which requires previous consultation with a specialist. The Universal Construction is made of aluminium bars connected with each other using attachments, creating a platform for two collectors. The remaining elements of the construction, which maintain it at the right angle, and bases mounting the platform to the ground, are made with hot-dip galvanized carbon steel. All elements of the construction are powder coated to the colour of the collector, i.e. RAL 7022.

KSOL-2 universal construction

no. 22.22.02

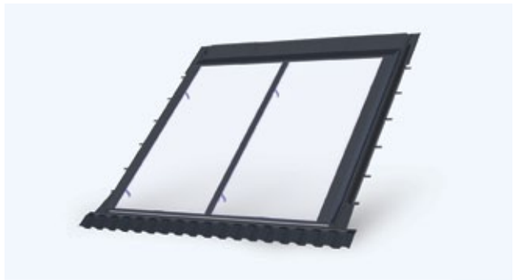
KSOL-1 universal construction

no. 22.22.01

The basic size is the **KSOL-2 Universal Construction for two collectors,** which can be extended to **max. 8** collectors in one set, by choosing the **KSOL-1** Universal Construction for each additional collector.
If the collectors are installed on the ground, brackets for concreting the structure to the ground must be screwed in to the Universal Constructions using bolts. Brackets (bases for installation on the ground) are sold separately. A set of brackets includes 2 pieces.
Note: brackets for installation on the ground are not standard accessories of the Universal Constructions and are not an element of solar heating system sets.

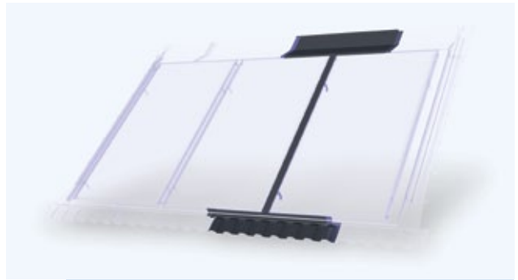
FLASHING FOR THE COLLECTOR

The flashing is used to install flat plate solar collectors in the roof planking, which is its integral part. For practical reasons, it is recommended to use it only on roofs with a slope of greater than 30 degrees and covered with ceramic tile.
The Flashing is made entirely out of aluminium sheets, painted the gray-brown colour RAL 7022, which is also the colour of the collector in the version with the lacquered finish. During the assembly, solar collectors are laid directly on the planking or on the formwork or lathes of the roof structure.



Flashing for two collectors F65163

no. 27.01.00



Flashing for additional collector F65164

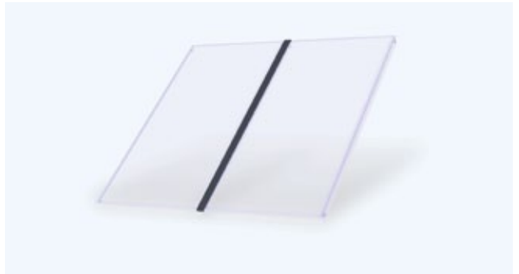
no. 27.01.02

The basic size is the **F65163 flashing for two KS2000 base collectors.** In larger, serial sets **(max. 8 pieces),** collectors are connected with one another by adding **one F16564 flashing for each additional KS2000 collector** in the battery to the basic F65163 flashing.
Each Building Flashing includes a KSL masking profile - 1 piece.

MASKING PROFILE KSL

Masking profiles are used to cover the space between the flat plate collectors included in the battery of collectors. Masking profiles can be used with any type of handle or flashing. They improve the look of the installation and protect the flares which connect the collectors. The KSL masking profile is made of aluminium sheet, painted with RAL 7022.

For a single battery of collectors, order one profile less than the number of collectors in the battery. **The correct number of masking profiles is an element of each solar heating system set.**



Masking profile KSL

no. 41.02.00

1. 2. Handles for KSR10 evacuated tube solar collector sets

The required number of the various handles								
Surface slope	**30° ÷ 60°**		**20° ÷ 30°**		**0° ÷ 20°**		**>30°**	
Name of fixture	**Universal Handle**		**Adjusting Handle**		**Universal Construction [1]**		**Flashing**	
Name cont.	KSRL-2	KSRL-1	KSRL-2	KSRL-1	KSRL-2	KSRL-1	-	-
Catalogue number	21.62.02	21.62.01	21.72.02	21.72.01	22.32.02	22.32.01	-	-
2 collectors	1	-	1	-	1	-	-	-
3 collectors	1	1	1	1	1	1	-	-
4 collectors	1	2	1	2	1	2	-	-
5 collectors	1	3	1	3	1	3	-	-

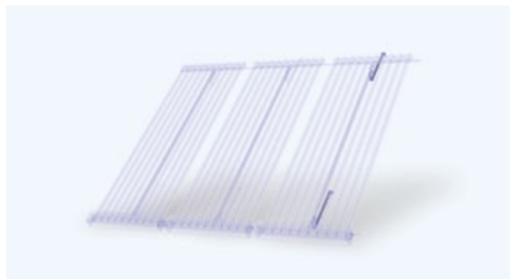
[1] If installing the construction directly on the ground, see description of the KSRL UNIVERSAL CONSTRUCTION.

KSRL UNIVERSAL HANDLE

The Universal Handle is used to attach evacuated tube collectors on sloped roofs with any kind of roofing and slope of greater than 30 degrees. KSRL Universal Handle is a set of hooks made of stainless steel.

KSRL-2 universal handle

no. 21.62.02



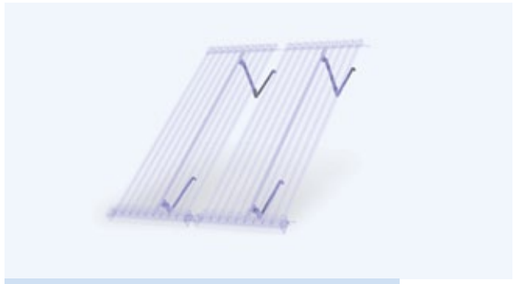
KSRL-1 universal handle

no. 21.62.01

The basic size is the **KSRL-2 Universal Handle for two KSR10 base collectors**. In larger, serial sets **(max. 5 pieces),** collectors are connected with one another by adding one **KSRL-1 Universal Handle for each additional KSR10 collector** in the battery to the basic KSRL-2 Handle.

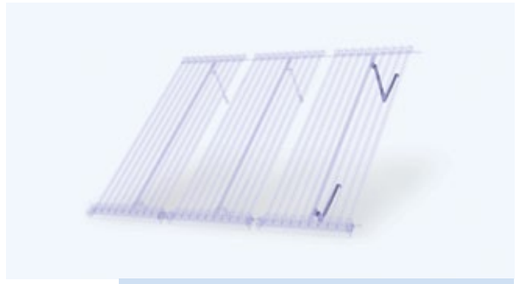
KSRL ADJUSTING HANDLE

The KSRL Adjusting Handle is a type of universal handle, designed for a sloped roof with an angle of 20° to 30°. The Adjusting Handle differs from the universal handle in that its upper hooks have an adjustable height in order that the angle of the collectors' inclination is greater by 10° than the slope of the roof. Hooks for adjusting handles are made of hot-dip galvanized carbon steel. The KSRL Adjusting Handle is made entirely of hot-dip galvanized carbon steel. Additionally, it is powder coated in the colour RAL 7022.



KSRL-2 adjusting handle

no.21.72.02



KSRL-1 adjusting handle

no. 21.72.01

The basic size is the **KSRL-2 Adjusting Handle for two KSR10 base collectors.** In larger, serial sets **(max. 5 pieces),** collectors are connected with one another by adding one **KSRL-1 Adjusting Handle for each additional KSR10 collector** in the battery to the basic KSRL-2 Handle.

KSRL UNIVERSAL CONSTRUCTION

The Universal Construction is made for mounting KSR10 evacuated tube collectors on roofs with a slope of less than 20° to the horizontal plane, on hard horizontal surfaces, for example, on the ground and the vertical walls of buildings, which requires previous consultation with a specialist. The KSRL Universal Construction is made of hot-dip galvanized steel bars, which are powder coated in the colour of the collector - RAL 7022.
Stainless steel couplings and bolts are an exception and are unpainted.

KSRL-2 universal construction

no. 22.32.02

KSRL-1 universal construction

no. 22.32.01

The basic size is the **KSRL-2 Universal Construction for two KSR10 base collectors.** In batteries with more than two collectors, add one **KSRL-1 Construction for each additional KSR10 evacuated tube solar collector.**
If the collectors are installed on the ground, brackets for concreting the construction to the ground must be screwed in to the Universal Construction using bolts. Brackets (bases for installation on the ground) are sold separately. A set of brackets includes 2 pieces.
Note: brackets for installation on the ground are not standard accessories of the Universal Construction and are not an element of solar heating system sets.

GROUND BASIS

In case of installing solar collectors on the ground, a set of supports must be concreted over prior to screwing it to the proper universal construction (KSOL or KSRL). Ground basis is suitable for both types of collectors – flat plate collectors KS2000 and evacuated tube collectors KSR. The supports (2 pieces in a set) is a separate item, with its own, unique catalogue number.

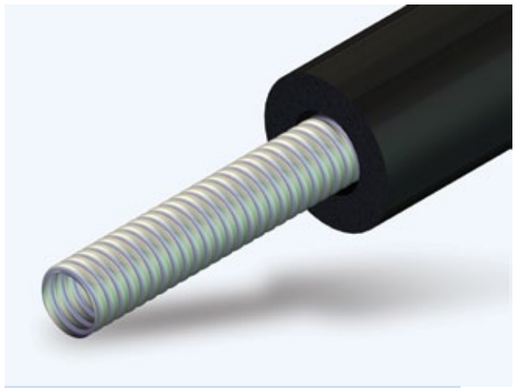
Note: Ground basis is not a constituent element of the universal construction. Neither is it a part of solar sets offered by HEWALEX.

Ground basis

no. 22.20.02

7. PIPING FOR THE SOLAR HEATING SYSTEM

STAINLESS STEEL ELASTIC TUBE



Stainless steel elastic tube

no. 80.41.01

Stainless steel elastic tube is used as the piping for the heat transfer fluid in solar heating systems. The elastic tube has a National Institute of Hygiene Certificate No. PZH HK/W/0705/01/2010.

The wall of the elastic tube is made in the form of a thread (helical). This solution reduces flow resistance and reduces vibrations and noise induced by the liquid flow. Tubes are available in nominal sizes **DN15, DN20** and **DN25**, in **50m** coils, without insulation or 13mm insulation by Armacell: **Armaflex AC, HT/Armaflex, HT/Armaflex S.**

Nominal diameter	Internal diameter	External diameter	Min. bending radius	Max. working pressure
DN15 (1/2")	13.9 – 14.1 mm	17.9 – 18.0 mm	30 mm	15 bar
DN20 (3/4")	21.1 – 21.3 mm	25.6 – 25.8 mm	40 mm	13 bar
DN25 (1")	27.2 – 27.4 mm	32.6 – 32.8 mm	50 mm	12 bar

ELASTIC TUBE [1]			
Nominal diameter	**Product name**	**Catalogue number**	**Thermal insulation [2]**
DN15 (1/2")	Stainless steel elastic tube DN15 [50 m]	80.40.15	-
	Insulated elastic tube SN-DN15/AC [50 m]	80.41.01	Armaflex AC
	Insulated elastic tube SN-DN15/HT [50 m]	80.41.02	HT/Armaflex
	Insulated elastic tube SN-DN15/HT in cover [50 m]	80.41.03	HT/Armaflex S
DN20 (3/4")	Stainless steel elastic tube DN20 [50 m]	80.40.20	-
	Insulated elastic tube SN-DN20/AC [50 m]	80.42.01	Armaflex AC
	Insulated elastic tube SN-DN20/HT [50 m]	80.42.02	HT/Armaflex
DN25 (1")	Stainless steel elastic tube DN25 [50 m]	80.40.25	-

[1] Each tube includes 50 m of the elastic tube and 25 grams of FLISIL E brazing flux.

[2] **Armaflex AC** (max. working temperature 105°C), **HT/Armaflex** (max. working temperature 150°C, resistance to UV), **HT/Armaflex S** (max. working temperature 150°C, resistance to UV and mechanical damage).

HEWALEX

Selecting the right stainless steel elastic tube diameter

Maximum length of connections (supply + return) [1]			
Nominal diameter of tube		**DN15 (1/2")**	**DN20 (3/4")**
Number of KS2000 or KSR10 collectors	**2**	100 m	-
	3	40 m	-
	4	20 m	120 m
	5	12 m	80 m
	6	-	60 m
	8	-	30 m

[1] Selecting diameters for a larger number of collectors - please consult with HEWALEX.

CONNECTORS FOR THE ELASTIC TUBE

Connector (...) GZ1/2" (DN15)

no. 80.44.06

Connector (...) GZ3/4" (DN15)

no. 80.44.01

Half - union (...) GW3/4" (DN15)

no. 80.44.04

CONNECTORS FOR THE ELASTIC TUBES		
Nominal diameter	**Product name**	**Catalogue number**
DN15 (1/2")	Connector for elastic tube GZ1/2" (DN15)	80.44.06
	Connector for elastic tube GZ3/4" (DN15)	80.44.01
	Pipe half - union for elastic tube GW3/4" (DN15)	80.44.04
DN20 (3/4")	Connector for elastic tube GZ3/4" (DN20)	80.44.02
DN25 (1")	Connector for elastic tube GZ1" (DN25)	80.44.03
ADDITIONAL ELEMENTS		
DN15 (1/2")	Solder ring (2 pieces) DN 15 [1]	80.44.07
DN20 (3/4")	Solder ring (2 pieces) DN 20 [1]	80.44.08
DN25 (1")	Solder ring (2 pieces) DN 25 [1]	80.44.09
-	Soldering compound AG45SN 1.5 mm	80.44.05
-	Brazing flux Flisil E (100 g)	80.44.10

[1] Solder ring (1 pc.) ships standard with the connector / pipe half - union.

8. INSTALLATIONS MATERIALS

SET ZNP

ZNP 18DS SET

no. 72.18.00

The expansion tank compensates for changes in the volume of the heat transfer fluid in the system occurring as a result of a temperature increase, maintaining a constant pressure in the system. The ZNP Expansion tank assembly includes an expansion tank, a wall bracket and a connection for the tank.

Product name	Catalogue no.
Set ZNP 18DS	72.18.00
Set ZNP 24DS	72.24.00

TERMSOL EKO LIQUID

TERMSOL EKO -25°C (20 kg)

no. 80.32.20

TERMSOL EKO liquid, which is the heat transfer fluid for solar heating systems for year-round operation, is a 42% aqueous solution of non-toxic propylene glycol (National Institute of Hygiene Certificate No. PZH/HT-2280/2009). Its composition includes a set of corrosion inhibitors, guaranteeing undisturbed operation of the system for many years. Its freezing temperature is -25°C, below which the liquid thickens, but it does not freeze. TERMSOL EKO liquid is fully miscible with other 40 – 50% aqueous solutions of propylene glycol, for example, ERGOLID EKO, TYFOCOR and BORYGO EKO.

Product name	Catalogue no.
TERMSOL EKO -25°C (5 kg)	80.32.05
TERMSOL EKO -25°C (20 kg)	80.32.20
TERMSOL EKO -25°C (30 kg)	80.32.30

MANUAL PUMP

Manual pump to fill installation

no. 73.02.00

Manual pump is used for filling and supplementing the solar heating system with the heat transfer fluid. It generates a maximum pressure of 3 bars for filling the system. The manual pump is part of the accessories for every set of solar collectors.

EXAMPLE OF A HEWALEX SOLAR HEATING SYSTEM SET

HEWALEX solar heating system sets are designed and created to provide an effective and economical use of solar energy in order to meet the needs of hot water heating.
The example of a set includes 2 or 3 solar collectors and water heaters with a capacity of 200 or 300 litres.

Set elements	Quantity
• Flat plate / tube solar collector	2 or 3 pcs.
• Connection set	1 set
• Elastic connection KS 3/4"	1 set
• Masking profile KSL (only KS2000)	2 or 3 pcs.
• Pump and control unit ZPS	1 pc.
• Dual coil heater	1 pc.
• Set ZNP	1 pc.
• Termsol EKO fluid -25°C	20 kg
• Manual pump for filling the system	1 pc.

HEWALEX solar heating system set				
Type of heater \ Type of collector	KS2000 TLP AC	KS2000 SLP	KS2000 TLP	KSR10
VF-200-2	2 TLPAC-200W	2 SLP-200W	2 TLP-200W	2 KSR10-200W
	92.41.01	92.22.23	92.42.23	92.15.23
VF-300-2s	3 TLPAC-300W	3 SLP-300W	3 TLP-300W	3 KSR10-300W
	93.41.01	93.22.33	93.41.01	93.22.33
KOMPAKT300HB	3 TLPAC-KOMPAKT300HB	3 SLP-KOMPAKT300HB	3 TLP-KOMPAKT300HB	3 KSR10-KOMPAKT300HB
	93.41.02	93.22.35	93.41.02	93.22.35

The selection table contains the name of the set and catalogue number. The first digit in the name of the set is the number of collectors. Sets are also equipped with all the necessary elements for the proper installation and start-up of the system, except for the handles, fixtures and piping. Handles and fixtures should be completed individually for specific sets according to the guidelines available in this catalogue on page 18.

TERMS OF WARRANTY

Solar collectors and all accessories which are a part of the solar heating system set offered by our company are covered under warranty.

The warranty granted for individual devices includes the following periods, counting from the date of purchase:

- flat plate solar collectors – 10 years
- evacuated tube solar collectors – 5 years
- pump and control units – 2 years
- heaters – 5 years

Specific warranty terms and conditions are described on the warranty cards attached to the supplied equipment.

HEWALEX

Product catalogue 2011

Solar technology

Edition I, revision 2
10.06.2011

www.hewalex.eu

HEWALEX
33 Slowackiego Street
43-502 Czechowice-Dziedzice
Poland

Phone. +48(32) 214 17 10, fax. ex. 353
e-mail: hewalex@hewalex.eu

Partner