KODSAN

SOLAR THERMAL SYSTEMS

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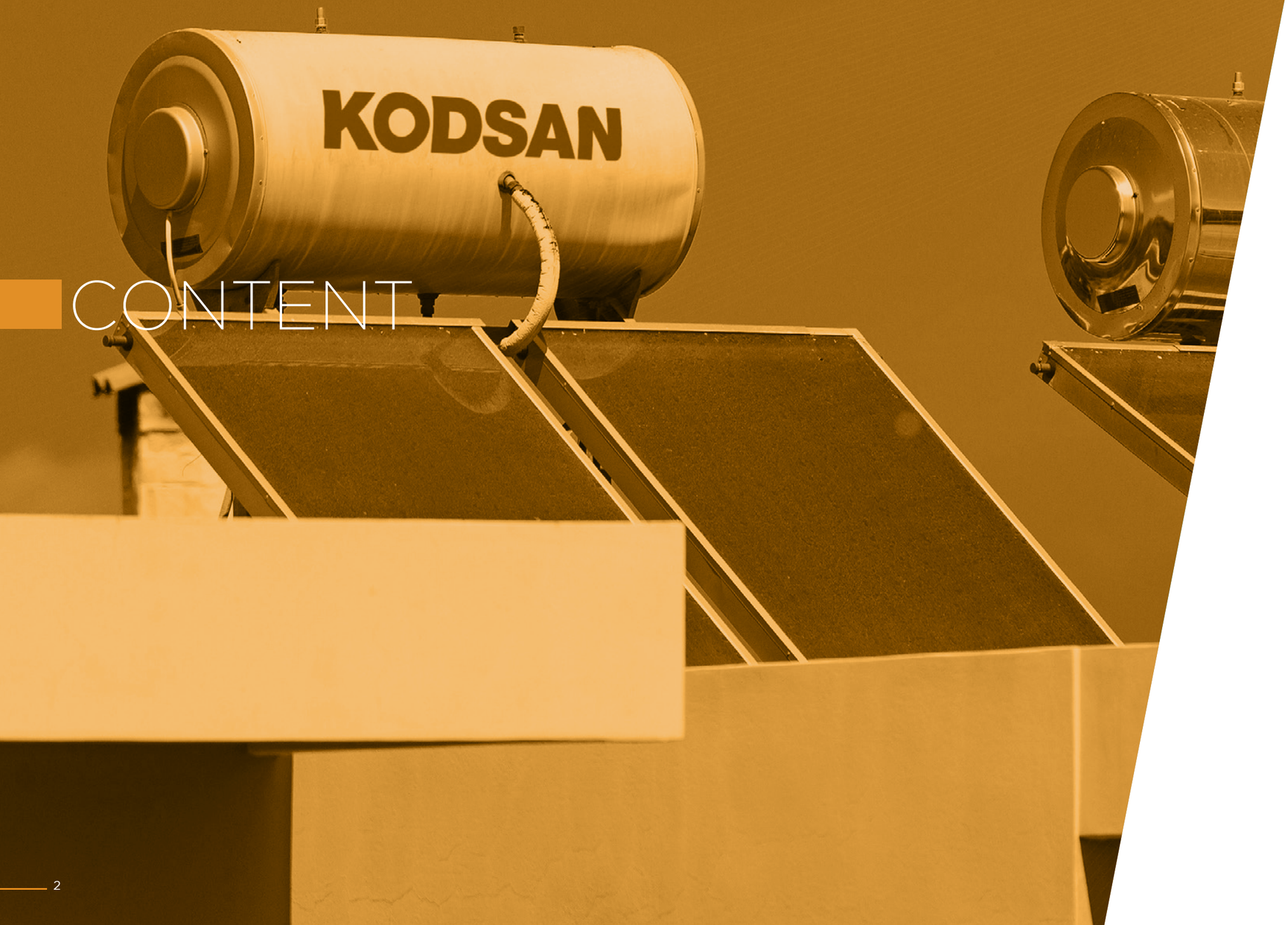
2021

ver. 1.0



CONTENT

KODSAN

Our Vision

In the light of the principles of honesty and trust, to provide human and environment-oriented products and services, to enlarge the business opportunities it has developed, and to be one of the top 5 companies in the world in the industry.

Our Mission

With its expert and dynamic team, innovative spirit and strong business partners, spreading our quality to the World, to create added value and difference by enlarging the business models.

About Us

Kodsan entered the heating industry with solid fuel boiler production when Mehmet Namık Kodaman founded the company in 1984, Ankara. It has become a leading company with its innovations, success, and people-oriented business strategies. It has grown, developed, and renewed considerably with the strength of over 35 years of experience.

As Turkey's first and largest enamel coated water heater manufacturer, Kodsan increases its recognition in early 2000, in Turkey and surrounding countries. Kodsan manufactures enamel/ non-enamel covered water heaters, heat interface units, automatic pump controlled expansion systems, separators and filters, installment protection equipments.

Additionally, with its extensive technical service network, Kodsan provides service for energy consumption management and heat meter inspection.

Main Export Countries

Azerbaijan, Canada, Denmark, France, Germany, Greece, Holland, Iraq, Israel, Italy, Kenya, Norway, Portugal, Qatar, Republic of South Africa, Russia, Saudi Arabia, South Korea, Spain, Sweden, Thailand, United Arab Emirates, United Kingdom, Uruguay

Our Achievements

Kodsan shines out with its advanced technology, high efficiency products and flexible production capability which can quickly adapt to the customer demands. However among these specialities, Kodsan prioritizes human health as well as the environment. Following this principle, all production processes and products are appropriate to the Europe Environment and Human Health Regulations(Reach and Rosh). For example;

- WRAS certification for the used enamel as well as for all the materials and products that contacts the drinkable water.
- Kodsan manufactures specially designed products that avoid bacteria growth such as legionella which causes the legionnaire disease.
- Kodsan is one of the limited companies that has a waste water treatment facility.
- Raw material which does not include heavy metals and with low carbon footprint are being used during production.
- Maximum sensitivity shown for recycling through all production processes.

Milestones

1984 — Founded in Ankara as a solid fuel boiler manufacturer on 400m².

1992 — Started to the construction of 2000m² area in Sincan Organized Industrial Zone.

1998 — Enameled water heater manufacturing started.

2000 — First export sales is realized.

2002 — Separator production line was established.

2004 — Boiler manufaturing ended.

2013 — Company reached 12.000m² closed area and 16.500m² area in total.

2015 — Partnership with Minol ZENNER started.

2016 — The number of export sales exceeded 35 countries.

2017 — Design Center is approved by government.

2018 — The production lines and designs of the company have been purchased, and the Heat Interface Unit manufacturing has started.

2019 — Distribution for TR market with RBM started.

Company reached 20.000m² closed area and 24.500m² area in total.

2020 — The number of Export sales exceed 50 countries.

HYGIENIC
& HEALTHY

Kodsan protects the hot water it offers to its valuable users in a healthy and hygienic way with its enamel-coated products with WRAS certificate.

ENVIRONMENT
FRIENDLY

Kodsan optimizes it’s business processes, starting from design until the end of products’ economic life to leave a sustainable world for future generations with minimum carbon footprint.

RENEWABLE
ENERGY

Renewable energy systems are rapidly becoming more efficient and cheaper, and their share in total energy consumption is increasing.

Renewable energy systems offers savings upto 60%.

SOLAR KEYMARK
CERTIFICATE

The benefits of the Solar Keymark;

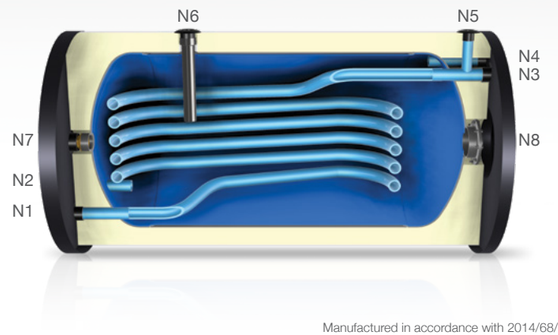
1) High quality products,

2) Guarantee that the product sold is identical to the tested product,

3) Confirmation that products are fully tested according to the relevant standards,

4) Eligibility for subsidies.

11.20 **KSS** HORIZONTAL WATER HEATER WITH COIL



Volume
150L-300L

Maximum Heating Power
52 kW_h

Maximum Solar Collector Area
87 m^2

Heat Exchanger (Coil) Maximum Operation Temperature
110°C

Heat Exchanger (Coil) Maximum Operation Pressure
10 bar

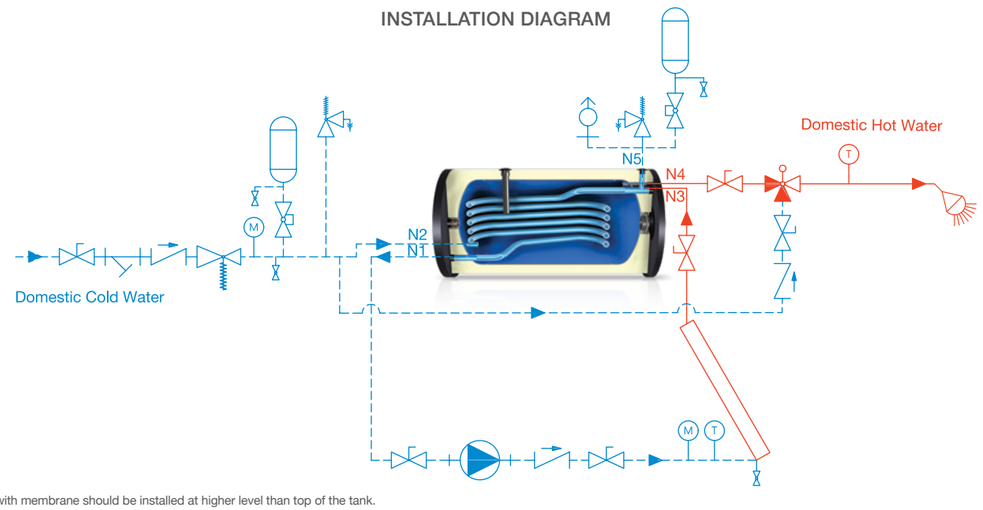
Domestic Hot Water Maximum Operation Temperature
95°C

Domestic Hot Water Maximum Operation Pressure
10 bar

Inner Surface Coating
Tank inner surface is enamelled (glass-lined) in accordance with DIN 4753-3 standard.

Manufactured in accordance with 2014/68/EU Pressure Equipment Directive, TS EN 13445-3, TS736 and TS EN 12897 standards.

INSTALLATION DIAGRAM



Relief valves with membrane should be installed at higher level than top of the tank.
Thus it is protected against high temperature and calcification and it is not necessary to discharge the tank when working on the relief valve.
The installaion diagram shown above is just an example. The installion must be done according to updated standards and instructions.

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		150L-300L
INSULATION	PU- 42kg/m^3 HCFC-free polyurethane in accordance with the 814/2013 EU ErP Comission Regulations and TS EN 12897 Standards	STD/50 mm
COATING	Sheet Metal - Electrostatic Powder Painted Sheet	STD
EQUIPMENT	Cleaning & Control Flange	STD/Ø80 mm
	Electric Heater	OPS/1¼" 2-3 kW
	Pressure/Air Ventilation Connection	STD
CATHODIC PROTECTION	Magnesium Anode	STD
	Electronic Anode	x

STD: Abbreviation for spare parts and equipments which belong to the standard products.
OPS: Abbreviation for the optional spare parts and equipments for non-standart products.

	Code	Unit	11.20.12	11.20.14	11.20.16
Capacity	V	lt	150	200	300
Insulation Type & Thickness	i	mm	PU/50	PU/50	PU/50
Diameter	ØD	mm	580	580	580
Length	L	mm	1100	1340	1835
Heating Fluid Outlet Connection	N1	inch	¾"	¾"	¾"
Domestic Cold Water Inlet Connection	N2	inch	¾"	¾"	¾"
Heating Fluid Inlet Connection	N3	inch	¾"	¾"	¾"
Domestic Hot Water Outlet Connection	N4	inch	¾"	¾"	¾"
Pressure & Air Ventilation Connection	N5	inch	¾"	¾"	¾"
Magnesium Anode Connection	N6	inch	1¼"	1¼"	1¼"
Blind Connection	N7	inch	1¼"	1¼"	1¼"
Cleaning & Control Flange Diameter / Electric Heater Connection	N8	mm/inch	Ø80 / 1¼"	Ø80 / 1¼"	Ø80 / 1¼"
Gross Weight	G	kg	80	100	160
Tilt Height	R	mm	1245	1460	1950

The table shown above is prepared based on spare parts and equipments which belong to the standard products; all products have internal thread connection.

11.21 **KSC** HORIZONTAL DOUBLE WALL WATER HEATER

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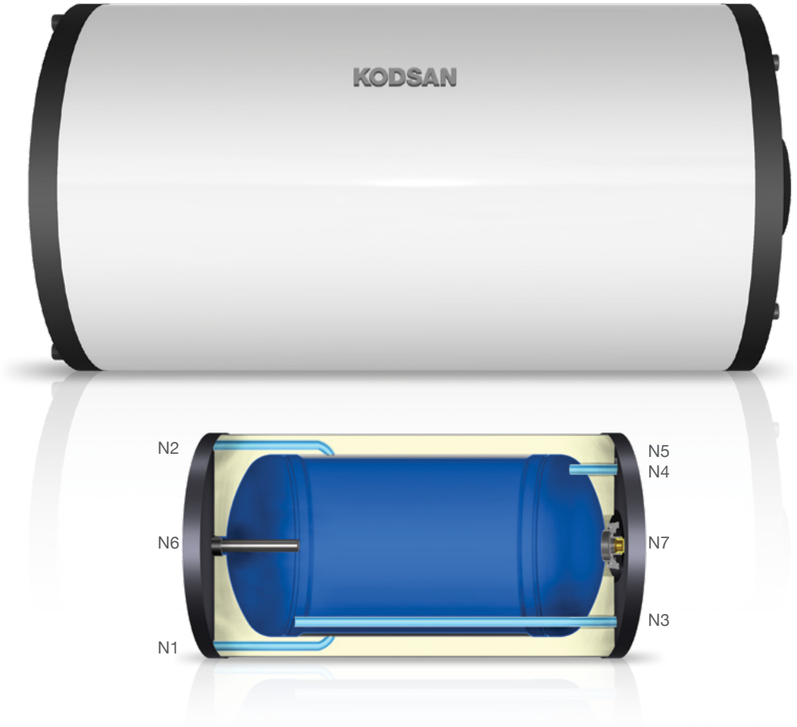


Volume
150L-300L

Heat Exchanger (Double Wall) Maximum Operation Temperature
110°C

Heat Exchanger (Double Wall) Maximum Operation Pressure
2,5 bar

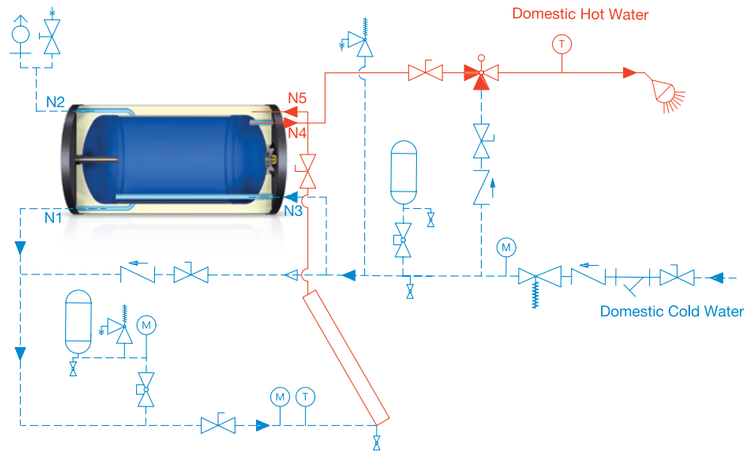
Domestic Hot Water Maximum Operation Temperature
95°C

Domestic Hot Water Maximum Operation Pressure
10 bar

Inner Surface Coating
Tank inner surface is enamelled (glass-lined) in accordance with DIN 4753-3 standard.

Manufactured in accordance with 2014/68/EU Pressure Equipment Directive, TS EN 13445-3, TS736 and TS EN 12897 standards.

INSTALLATION DIAGRAM



Relief valves with membrane should be installed at higher level than top of the tank.
Thus it is protected against high temperature and calcification and it is not necessary to discharge the tank when working on the relief valve.

The installaion diagram shown above is just an example. The installion must be done according to updated standards and instructions.

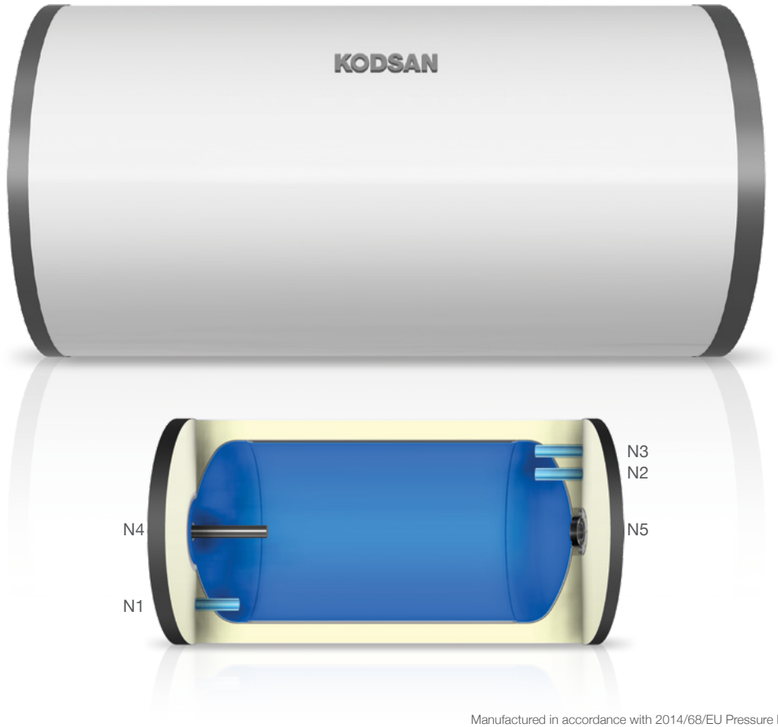
		150L-300L
INSULATION	PU- 42kg/m³ HCFC-free polyurethane in accordance with the 814/2013 EU ErP Comission Regulations and TS EN 12897 Standards	STD/50 mm
COATING	Sheet Metal - Electrostatic Powder Painted Sheet	STD
EQUIPMENT	Cleaning & Control Flange	STD/Ø80 mm
	Electric Heater	OPS/1¼" 2-3 kW
	Pressure/Air Ventilation Connection	STD
CATHODIC PROTECTION	Magnesium Anode	STD
	Electronic Anode	x

STD: Abbreviation for spare parts and equipments which belong to the standard products.
OPS: Abbreviation for the optional spare parts and equipments for non-standart products.

	Code	Unit	11.21.12	11.21.14	11.21.16
Capacity	V	lt	150	200	300
Insulation Type & Thickness	i	mm	PU/50	PU/50	PU/50
Diameter	ØD	mm	580	580	580
Length	L	mm	1100	1340	1860
Heating Fluid Outlet Connection*	N1	inch	¾"	¾"	¾"
Pressure & Air Ventilation Connection*	N2	inch	¾"	¾"	¾"
Domestic Cold Water Inlet Connection*	N3	inch	¾"	¾"	¾"
Domestic Hot Water Outlet Connection*	N4	inch	¾"	¾"	¾"
Heating Fluid Inlet Connection*	N5	inch	¾"	¾"	¾"
Magnesium Anode Connection	N6	inch	1¼"	1¼"	1¼"
Cleaning & Control Flange Diameter / Electric Heater Connection	N7	mm/inch	Ø80 / 1¼"	Ø80 / 1¼"	Ø80 / 1¼"
Gross Weight	G	kg	68	82	115
Tilt Height	R	mm	1245	1460	1950

The table shown above is prepared based on spare parts and equipments which belong to standard products; Connections which are marked with "*" have external thread, while others have internal thread connections.

51.13 **KSO** HORIZONTAL WATER HEATER



Volume
150L-300L

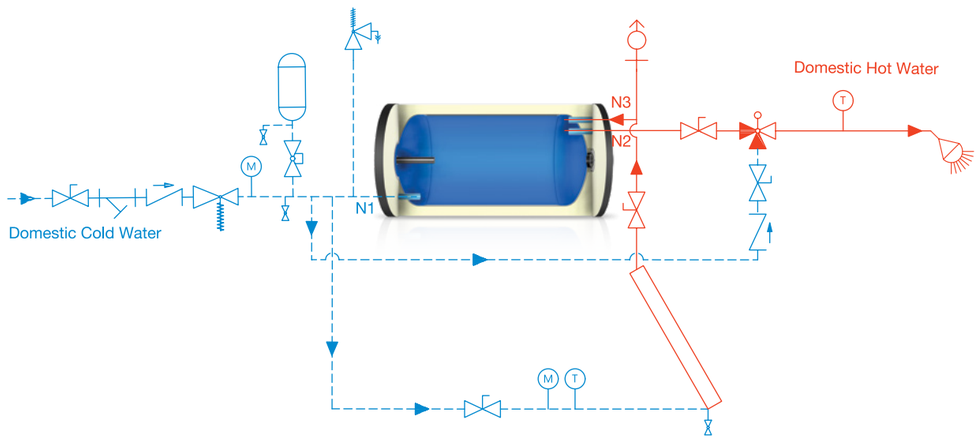
Domestic Hot Water Maximum Operation Temperature
95°C

Domestic Hot Water Maximum Operation Pressure
10 bar

Inner Surface Coating
Tank inner surface is enamelled (glass-lined) in accordance with DIN 4753-3 standard.

Manufactured in accordance with 2014/68/EU Pressure Equipment Directive, TS EN 13445-3 and TS EN 12897 standards.

INSTALLATION DIAGRAM



Relief valves with membrane should be installed at higher level than top of the tank.
Thus it is protected against high temperature and calcification and it is not necessary to discharge the tank when working on the relief valve.

The installaion diagram shown above is just an example. The installion must be done according to updated standards and instructions.

		150L-300L
INSULATION	PU- 42kg/m³ HCFC-free polyurethane in accordance with the 814/2013 EU ErP Comission Regulations and TS EN 12897 Standards	STD/50 mm
COATING	Sheet Metal - Electrostatic Powder Painted Sheet	STD
EQUIPMENT	Cleaning & Control Flange	STD/Ø80 mm
	Electric Heater	OPS/1¼" 2-3 kW
	Pressure/Air Ventilation Connection	x
CATHODIC PROTECTION	Magnesium Anode	STD
	Electronic Anode	x

STD: Abbreviation for spare parts and equipments which belong to the standard products.
OPS: Abbreviation for the optional spare parts and equipments for non-standart products.

	Code	Unit	51.13.12	51.13.14	51.13.16
Capacity	V	lt	150	200	300
Insulation Type & Thickness	i	mm	PU/50	PU/50	PU/50
Diameter	ØD	mm	580	580	580
Length	L	mm	1040	1315	1835
Domestic Cold Water Inlet / Heating Fluid Outlet Connection	N1	inch	¾"	¾"	¾"
Domestic Hot Water Outlet Connection	N2	inch	¾"	¾"	¾"
Heating Fluid Inlet Connection	N3	inch	¾"	¾"	¾"
Magnesium Anode Connection	N4	inch	1¼"	1¼"	1¼"
Cleaning & Control Flange Diameter / Electric Heater Connection	N5	mm/inch	Ø80 / 1¼"	Ø80 / 1¼"	Ø80 / 1¼"
Gross Weight	G	kg	66	80	112
Tilt Height	R	mm	1245	1460	1950

The table shown above is prepared based on spare parts and equipments which belong to the standard products; all products have internal thread connection.

312.12 **SOP IX** ST SOLAR PANEL

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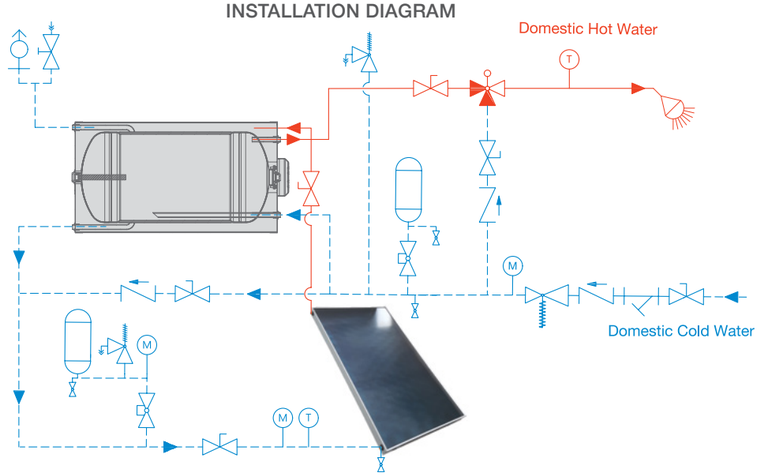
Area	: 1,8 m^2 - 2,3 m^2	**Absorber Sheet**	: Black Semi-Selective, Al
Maximum Operation Pressure	: 10 bar	**Absorbtance of Coating (α_{sol})**	: 0,90 ± 0,01
Absorber Test Pressure	: 15 bar	**Emission (ε)**	: 0,20 ± 0,05
Insulation	: Rock Wool	**Welding Method**	: Laser Welding
Connections	: ¾" Internal Thread	**Manifold Diameter (Ø)**	: 22 mm
Casing	: Anodized Aluminium Body	**Risers Diameter (Ø)**	: 8 mm
Sealing	: EPDM Sealing & Glue	**Transparent Cover**	: 4 mm Tempered Solar Glass
Back Sheet	: Aluminium Sheet	**Heat Tranfer Medium**	: Mixture of Water, Glycol

INSTALLATION DIAGRAM



Relief valves with membrane should be installed at higher level than top of the tank.
Thus it is protected against high temperature and calcification and it is not necessary to discharge the tank when working on the relief valve.

The installaion diagram shown above is just an example. The installion must be done according to updated standards and instructions.

	Code	Unit	312.12.11	312.12.12
Collector Type	T	x	PLANAR SOLAR COLLECTOR	
Gross Area	A	m^2	1,76	2,31
Absorber Area	A_{ab}	m^2	1,60	2,14
Aperture Area	A_{ap}	m^2	1,71	2,25
Dimesions	WxLxH	mm	916x1916x92	1176x1961x92
Gross Weight	G	kg	26	34
Heat Transfer Medium Volume	V	lt	1,22	1,55

311.12 **SOP VIII** HP SOLAR PANEL

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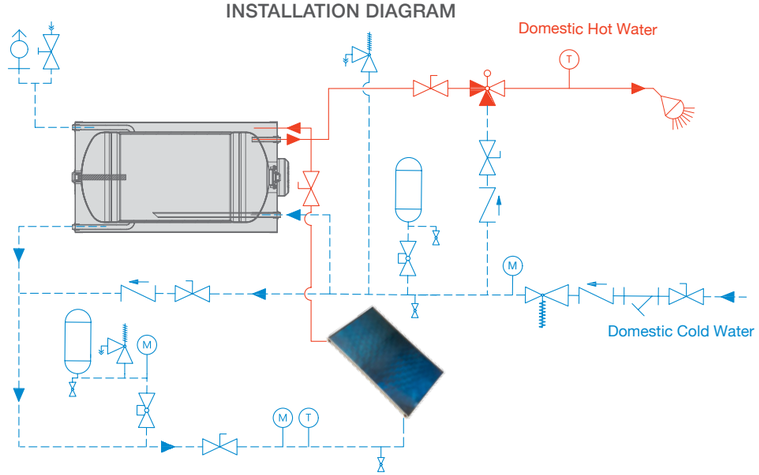
Area	: 1,8 m^2 - 2,7 m^2	**Absorber Sheet**	: Blue High Selective, Al
Maximum Operation Pressure	: 10 bar	**Absorbtance of Coating (α_{sol})**	: 0,95 ± 0,01
Absorber Test Pressure	: 15 bar	**Emission (ε)**	: 0,05 ± 0,02
Insulation	: Rock Wool	**Welding Method**	: Laser Welding
Connections	: ¾" Internal Thread	**Manifold Diameter (Ø)**	: 22 mm
Casing	: Anodized Aluminium Body	**Risers Diameter (Ø)**	: 8 mm
Sealing	: EPDM Sealing & Glue	**Transparent Cover**	: 4 mm Tempered Solar Glass
Back Sheet	: Aluminium Sheet	**Heat Tranfer Medium**	: Mixture of Water, Glycol

INSTALLATION DIAGRAM



Relief valves with membrane should be installed at higher level than top of the tank.
Thus it is protected against high temperature and calcification and it is not necessary to discharge the tank when working on the relief valve.

The installaion diagram shown above is just an example. The installion must be done according to updated standards and instructions.

	Code	Unit	311.12.11	311.12.12	311.12.13
Collector Type	T	x	PLANAR SOLAR COLLECTOR		
Gross Area	A	m^2	1,76	2,31	2,66
Absorber Area	A_{ab}	m^2	1,60	2,14	2,48
Aperture Area	A_{ap}	m^2	1,71	2,25	2,60
Dimesions	WxLxH	mm	916x1916x92	1176x1961x92	1176x2261x92
Gross Weight	G	kg	26	34	40
Heat Transfer Medium Volume	V	lt	1,22	1,55	1,68

251 **SOD** RETURN LINE PUMP STATION FOR SOLAR THERMAL SYSTEMS

Body & Components	: Brass CW 617N UNI EN 12165
Washer & Tightness Orings	: Viton / Klinger
Insulation Box	: EPP
Connection Size	: G ¾"
Threaded Connections	: FM
Expansion Vessel Connection	: G ¾"
Fill & Discharge Connection	: G ¾" & Hose Connection

TECHNICAL SPESIFICATIONS

Fluids	: Water Water + (max) Glycol 50%
Maximum Operating Temperature	: 110 ˚C
Maximum Operating Pressure	: 10 bar
Safety Valve Calibration	: 6 bar (3 bar- 10 bar on request)
Pumps	: Grundfos UPM3 Solar 15-75 130, Grundfos Solar 15-65 130, Grundfos Solar 15-70 130
Power Supply	: 230V - 50 Hz

Thermal solar pump stations are products which integrate all hydraulic components necessary for a forced circulation thermal solar system: components for the system installation, regulation and safety.

252 Pump Station is composed of the only of the return line to the panel. The same versions are equipped with a controller to manage the thermal solar system.

The return line of 251 Pump Station for Solar Thermel Systems includes; pump, the mechanical flowmeter to read and regulate the flow rate, system fill and drain cock, ball shut-off valve with built-in temperature gauge and check valve, check valve override function, safety group with pressure gauge, safety relief valve and expansion vessel connection.

Product Code	Connection Size	Threaded Connections	Pump	Flowmeter Range [l/min]
05S 020 0AU	¾"	FF UNI EN ISO 228	UPM3 Solar 15-75 130	0,5- 15
05S 020 0AG	¾"	FF UNI EN ISO 228	Solar 15-65 130	0,5- 15
05S 020 0BU	¾"	FF UNI EN ISO 228	UPM3 Solar 15-75 130	3- 35
05S 020 0BA	¾"	FF UNI EN ISO 228	Solar 15-70 130	3- 35
05S 020 0AU M	¾"	MM UNI EN ISO 228	UPM3 Solar 15-75 130	0,5- 15
05S 020 0AG M	¾"	MM UNI EN ISO 228	Solar 15-65 130	0,5- 15
05S 020 0BU M	¾"	MM UNI EN ISO 228	UPM3 Solar 15-75 130	3- 35
05S 020 0BA M	¾"	MM UNI EN ISO 228	Solar 15-70 130	3- 35

252 **SOD** FLOW&RETURN LINE PUMP STATION FOR SOLAR THERMAL SYSTEMS

KODSAN

Body & Components	: Brass CW 617N UNI EN 12165
Washer & Tightness Orings	: Viton / Klinger
Insulation Box	: EPP
Connection Size	: G ¾"
Threaded Connections	: FM
Expansion Vessel Connection	: G ¾"
Fill & Discharge Connection	: G ¾" & Hose Connection

TECHNICAL SPESIFICATIONS

Fluids	: Water Water + (max) Glycol 50%
Maximum Operating Temperature	: 110 ˚C
Maximum Operating Pressure	: 10 bar
Safety Valve Calibration	: 6 bar (3 bar- 10 bar on request)
Pumps	: Grundfos UPM3 Solar 15-75 130, Grundfos Solar 15-65 130, Grundfos Solar 15-70 130
Power Supply	: 230V - 50 Hz

Thermal solar pump stations are products which integrate all hydraulic components necessary for a forced circulation thermal solar system: components for the system installation, regulation and safety.

252 Pump Station is composed of the return line from the panel and the flow line to the storage.

The same versions are equipped with a controller to manage the thermal solar system.

The return line of 252 Pump Station for Solar Thermel Systems includes; pump, the mechanical flowmeter to read and regulate the flow rate, system fill and drain cock, ball shut-off valve with built-in temperature gauge and check valve, check valve override function, safety group with pressure gauge, safety relief valve and expansion vessel connection.

While the flow line includes; ball shut-off valve with built-in temperature gauge and check valve, and manual de-aerator.

Product Code	Connection Size	Threaded Connections	Pump	Flowmeter Range [l/min]
07S 020 0AU	¾"	FF UNI EN ISO 228	UPM3 Solar 15-75 130	0,5- 15
07S 020 0AG	¾"	FF UNI EN ISO 228	Solar 15-65 130	0,5- 15
07S 020 0BU	¾"	FF UNI EN ISO 228	UPM3 Solar 15-75 130	3- 35
07S 020 0BA	¾"	FF UNI EN ISO 228	Solar 15-70 130	3- 35
07S 020 0AU M	¾"	MM UNI EN ISO 228	UPM3 Solar 15-75 130	0,5- 15
07S 020 0AG M	¾"	MM UNI EN ISO 228	Solar 15-65 130	0,5- 15
07S 020 0BU M	¾"	MM UNI EN ISO 228	UPM3 Solar 15-75 130	3- 35
07S 020 0BA M	¾"	MM UNI EN ISO 228	Solar 15-70 130	3- 35

IMPORTANT NOTES

- We highly recommend to follow instructions specified at the user and installation guide attached to your product in order to secure of using it in safe and efficient.
- Safety Valve, expansion tank and, if required, pressure reducer valve should be used with our products (water heaters and storage tanks).
- KODSAN reserves the right to change the product specifications, technical information and installation diagrams without any notifications.
  All information written on this page can not be copied or used without permission of KODSAN. Kodsan can not be held responsible if any of the technical information and schemes are considered exemplary by third parties.
- You may contact Kodsan for more details about your product.

SYMBOLS

Two-Way Motorized Valve	Bypass Valve	Pump	Pressure Relief Valve	Air Separator	Boiler System
Three-Way Modulating Motorized Valve	Drain Valve	Twin-Head Pump	Differential Pressure Regulating Valve	Dirt Separator	Condensing Boiler System
Two Way Thermostatic Valve	Shut Off Valve	Heat Meter	Flow Limiter	Membrane Expansion Tank	Cascade System
Three Way Thermostatic Valve	Strainer	Cold Water Flow Meter	Flow Sensor	Radiator or Underfloor Heating System	Combi System
Filling Valve	Check Valve	Pressure Gauge	Water Hammer Arrestor	Underfloor Heating System	Solar Panel
Ball Valve	Pressure Release Valve	Thermometer	Cable Terminal Box	Radiator Heating System	Heat Pump System
Thermostatic Outlet Ball Valve	Safety Thermostat	Air Relief Cock	Heat Exchanger	District Heating System	Usage Area

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