INSBUD®

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PRODUCTS CATALOG 2/2009

Contents

Thermostats, Controllers

Mottion Automatic

Solar Technology

Hydraulics and Other

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IB-Therm 01

Contact thermostat

Basic Information

Thermostat is designed for control such devices as valves, air dampers, fancoils, electric heaters, pumps, electric floor heating and other 2-point and 3-point control devices (on/off).

It is designed for mounting directly on pipes. Measuring element is the rear of the thermostat covered with a special heat conducting paste, which is in the set. Included also is a spring attachment thermostat to the pipe.

The thermostat is a mechanical dry-contact mechanism, it doesn't require electric power to work.

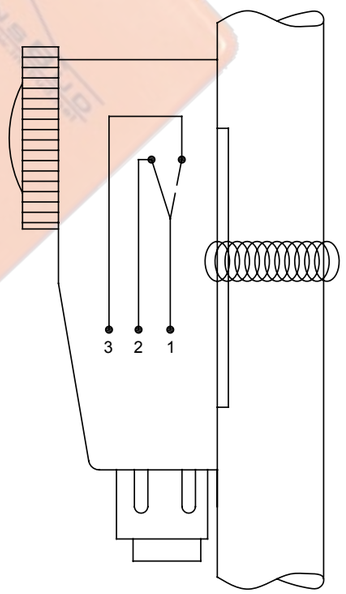
Technical Data

Setting range:	20 ÷ 90 °C
Hysteresis:	5 °C
Life cycles:	200 000
Max load:	400 W
Protection level:	IP 20
Storage temperature:	-20 ÷ 60 °C
Work temperature:	0 ÷ 60 °C
Terminals:	Ag 1000/1000

Net	Gross
16,00 EUR	19,52 EUR

Installation

When measured temperature is lower than the setting: terminals 1-2 are shorted and 1-3 are cut. When measured temperature is higher than setting: terminals 1-2 are cut and 1-3 are shorted.



Basic Information

Thermostat is designed for control such devices as valves, air dampers, fancoils, electric heaters, pumps, electric floor heating and other 2-point and 3-point control devices (on/off).

It is designed for mounting in tanks and on pipes. Measuring element is immersed directly in liquid. This solution enables the precise measurement of temperature.

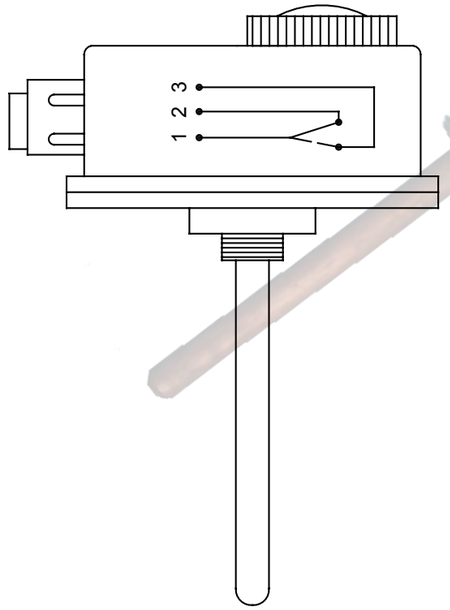
The thermostat is a mechanical dry-contact mechanism, it doesn't require electric power to work.

IB-Therm 02

Rod thermostat

Installation

When measured temperature is lower than the setting: terminals 1-2 are shorted and 1-3 are cut. When measured temperature is higher than setting: terminals 1-2 are cut and 1-3 are shorted.



Technical Data

Setting range:	20 ÷ 90 °C
Hysteresis:	5 °C
Life cycles:	200 000
Max load:	400 W
Protection level:	IP 20
Storage temperature:	-20 ÷ 60 °C
Work temperature:	0 ÷ 60 °C
Terminals:	Ag 1000/1000
Thread:	DN15
Rod height:	95 mm

Net	Gross
16,00 EUR	19,52 EUR

IB-Therm 20x

Room thermostat with fan control

Technical Data

- Setting range: 10 ÷ 30 °C
- Accuracy*: ± 1 °C
- Max load: 400 W
- Plastic cover: ABS
- Dimensions [mm]: 86x130x40
- Power consumption* : < 2 W
- Power supply*: 230V AC

* Only 203 model

Features

- Aesthetic and traditional look
- Easy and intuitive operating
- Available modes: heating / cooling
- Fan speed control function (three speeds)
- Ability to precisely set the demand temperature in room
- Independent output terminals for heating and cooling – 4-pipes fancoils (model 203S)

Available Models

- Model 201 - mechanical dry-contact mechanism, it doesn't require electric power to work. Lower accuracy, higher hysteresis.
- Model 203 - Electronic, NTC sensor, require electric power to work, 230V output signal, higher accuracy and lower hysteresis.
- Model 203S - Like 203 model but independent output for heating I cooling - simultaneously connection two devices (such as heater and cooler). Changing currently working device only with one heating / cooling button.

Model	Net	Gross
IB-Therm 201	8,00 EUR	9,76 EUR
IB-Therm 203	7,20 EUR	8,78 EUR
IB-Therm 203S	13,50 EUR	16,47 EUR

IB-Tron 31x

Room/floor/tank thermostat

IB-Tron 310

IB-Tron 311

Features

- Aesthetic and modern look
- Ability to precisely set the demand temperature in room and on the floor
- Precise construction ensures long life of thermostat
- On/off button
- On (red light) and heating (green light) indicator
- On- wall mounting
- High load allows direct connection of high power electric devices

Technical Data

- Power consumption: < 2 W
- Setting range:
  - » IB-Tron 31x A: 5 ÷ 30 °C
  - » IB-Tron 31x F: 20 ÷ 40 °C
- Accuracy: ± 2 °C
- Max load: 3000 W
- Power supply: 230V AC
- Sensor type: NTC
- Work temperature: 0 ÷ 60 °C
- Storage temperature: -20 ÷ 60 °C
- Humidity: 5 ÷ 90%

Available Models

- A - Room thermostat (built-in sensor)
- F - Outside sensor. It has increased temperature setting range. Designed for floor heating and hot water tanks.

Available Models

IB-Tron 310 and IB-Tron 311 are different in external appearance only.

Model	Net	Gross
IB-Tron 310A	10,70 EUR	13,05 EUR
IB-Tron 310F	10,70 EUR	13,05 EUR
IB-Tron 311A	10,70 EUR	13,05 EUR
IB-Tron 311F	10,70 EUR	13,05 EUR

IB-Tron 309

Room/floor/tank thermostat

Technical Data

- Power consumption: < 2 W
- Storage temperature: -20 ÷ 50 °C
- Visible temperature: 0 ÷ 99 °C
- Setting range:
  - » IB-Tron 309H 0 ÷ 80 °C
  - » IB-Tron 309HL 0 ÷ 80 °C
  - » IB-Tron 309LY 0 ÷ 35 °C
- Setting temperature: every 1 °C
- Accuracy: ± 1 °C
- Hysteresis: 1 °C
- Max load: 3500 W
- Power supply: 230V AC
- Plastic: ABS
- Dimensions [mm]: 86x86x13,5
- Display: LCD (3")
- Humidity: 5 ÷ 90%

Model	Net	Gross
IB-Tron 309H	17,80 EUR	21,72 EUR
IB-Tron 309HL	20,50 EUR	25,01 EUR
IB-Tron 309LY	23,50 EUR	28,67 EUR

Features

- Large LCD display with blue backlight
- Easy and intuitive operating
- Comprehensive programming of heating process in week cycle
- Three adjustable temperatures:
  - » Comfort
  - » Economy
  - » Holiday
- Power supply from building network - does not require a battery
- Battery supporting memory backup
- Manual and automatic control mode
- Two sensors
- Three working modes: A/AF/F
- Temp. display with 0,5 °C accuracy
- Remote control
- Aesthetic and a modern look
- High load allows direct connection of high power electric devices
- The possibility of sensor calibrating (long-line external sensors)

Work Modes

- A – Temperature control is based only on built-in air sensor (RT)
- F – Temperature control is based only on connected external sensor (FT).
- AF – Temperature control is based on built-in sensor (RT) and connected external sensor (FT). The thermostat is trying to reach set air temperature, but if the floor area exceeds temperature limit, the device is a priority turned off (floor protects against overheating).

Available Models

- H - high temperature range
- L - backlight
- Y - remote control

Features

- Large LCD display with blue backlight
- Easy and intuitive operating
- Comprehensive programming of heating process in week cycle
- Three adjustable temperatures:
  - » Comfort
  - » Economy
  - » Holiday
- Power supply from building network - with battery memory backup
- Two sensors
- Three working modes: A/AF/F
- Temp. display with 0,1 °C accuracy
- Remote control
- Adjustable hysteresis
- High load allows direct connection of high power electric devices
- GUARD function - protection devices from damage
- TEST function - forced relay operations
- The possibility of sensor calibrating (long-line external sensors)
- Floor temperature limit
- Network RS485 or Ethernet communication

Technical Data

- Power consumption: < 2 W
- Storage temperature: -20 ÷ 50 °C
- Visible temperature: -15 ÷ 140 °C
- Setting range: 0 ÷ 90 °C
- Setting temperature: every 1 °C
- Accuracy: ± 1 °C
- Hysteresis:
  - » 0,1 ÷ 0,5 °C every 0,1°C
  - » 0,5 ÷ 5 °C every 0,5°C
- Max load: 2000 W
- Power supply: 230V AC
- Dimensions [mm]: 120x120x23
- Display: LCD (4")
- Humidity: 5 ÷ 90%

IB-Tron 1000HT

Room/floor/tank thermostat

Tryby Pracy

- A – Temperature control is based only on built-in air sensor (RT)
- F – Temperature control is based only on connected external sensor (FT).
- AF – Temperature control is based on built-in sensor and connected external sensor. The thermostat is trying to reach set air temperature, but if the floor area exceeds temperature limit, the device is a priority turned off (floor protection).

Available Models

- BL - backlight
- RC - remote control
- NW - network communication

Model	Net	Gross
IB-Tron 1000HT	22,00 EUR	26,84 EUR
IB-Tron 1000HT-BL	25,00 EUR	30,50 EUR
IB-Tron 1000HT-BL-RC	28,50 EUR	34,77 EUR
IB-Tron 1000HT-BL-NW	28,50 EUR	34,77 EUR

IB-Tron 1000HTD

Differential controller

Technical Data

- Power consumption: < 2 W
- Storage temperature: -20 ÷ 50 °C
- Visible temperature: -20 ÷ 140 °C
- Difference setting: 1 ÷ 35 °C
  » co 0,5 °C
- Accuracy: ± 1 °C
- Hysteresis: 0,1 ÷ 5 °C
- Max load: 2000 W
- Power supply: 230V AC
- Dimensions [mm]: 120x120x23
- Display: LCD (4")
- Humidity: 5 ÷ 90%

Available Models

- BL - backlight
- NW - network communication

Model	Net	Gross
IB-Tron 1000HTD	22,00 EUR	26,84 EUR
IB-Tron 1000HTD-BL	25,00 EUR	30,50 EUR
IB-Tron 1000HTD-BL-NW	28,50 EUR	34,77 EUR

Basic Information

IB - Tron 1000HTD series of independent microprocessor electronic controller is equipped with a large LCD display. Thermostat is designed for control such devices as valves, air dampers, fancoils, electric heaters, pumps, electric floor heating and other 2-point and 3-point control devices (on/off).

Controller is designed for control of heating and cooling systems, where it is necessary to react when the temperature difference between two sensors exceeds desired level (solar systems, multi-tank systems etc.).

Features

- Measurement of two temperatures T1 and T2 - calculation of their difference and adequate response
- Large LCD display with blue backlight
- Easy and intuitive operating
- Comprehensive programming of process in week cycle
- Power supply from building network - with battery memory backup
- Three adjustable temp. differences
- Adjustable hysteresis
- Manual and automatic control mode
- Temp. display with 0,1 °C accuracy
- Aesthetic and a modern look
- The possibility of sensor calibrating (long-line external sensors)
- T1 and T2 temperature limit
- High load allows direct connection of high power electric devices
- 3-point control
- GUARD function - protection devices from damage
- TEST function - forced relay operations
- Keyboard lock
- Network RS485 or Ethernet communication

Basic Information

IB - Tron 1000GHE series allows control processes of heating, cooling and ventilating. Its choosing best source of heat/cold in intelligent way including testing periods. An example of this type of installation is controlling of ground heat exchanger (GHE).

A professional and intelligent controller for systems where you have to choose best source of heat or cold from two different sources. This is not a simple differential controller!

Features

- For controlling systems where is needed to choose best source of heat or cold from two different sources including testing periods for each source for meaningful measurement.
- Large LCD display with blue backlight
- Easy and intuitive operating
- Measurement of two temperatures
- Zasilanie z sieci – nie wymaga baterii
- Power supply from building network - with battery memory backup
- The possibility of sensor calibrating (long-line external sensors)
- Adjustable hysteresis
- Heating (winter) and cooling (summer) mode
- Temp. display with 0,1 °C accuracy
- Aesthetic and a modern look
- T1 and T2 temperature limit
- High load allows direct connection of high power electric devices
- 3-point control
- GUARD function - protection devices from damage
- TEST function - forced relay operations
- Keyboard lock
- Network RS485 or Ethernet communication

IB-Tron 1000GHE

Electronic controller for ground heat exchanger (GHE)

Technical Data

- Power consumption: < 2 W
- Storage temperature: -20 ÷ 50 °C
- Visible temperature: -20 ÷ 140 °C
- Accuracy: ± 1 °C
- Hysteresis: 0,1 ÷ 5 °C
- Max load: 2000 W
- Power supply: 230V AC
- Dimensions [mm]: 120x120x23
- Display: LCD (4")
- Humidity: 5 ÷ 90%

Available Models

- BL - backlight
- NW - network communication

Model	Net	Gross
IB-Tron 1000GWC	22,00 EUR	26,84 EUR
IB-Tron 1000GWC-BL	25,00 EUR	30,50 EUR
IB-Tron 1000GWC-BL-NW	28,50 EUR	34,77 EUR

IB-Tron 1000FLOW

Flow controller (level of liquid controller)

Basic Information

IB - Tron 1000FLOW series is designed for processes where it is necessary to control the level of liquids (eg, closing valve after the flooding, opening valve when tank is empty). It aims to detect the presence of fluid occurs at the level of sensor electrodes.

Keep in mind that liquid (water) in different places have different resistance. Resistance depends of mineral, purity etc. Therefore it is necessary to use controllers with setting resistance. IB-Tron 1000FLOW allows setting of resistance to a very large extent, which makes it an universal device.

Technical Data

- Power consumption: < 2 W
- Storage temperature: -20 ÷ 50 °C
- Visible resistance: 0 ÷ 999 Ω co 1 Ω
- Setting range: 1 ÷ 999 Ω every 1 Ω
- Accuracy: ± 5 Ω
- Max load: 2000 W
- Power supply: 230V AC
- Dimensions [mm]: 120x120x23
- Display: LCD (4")
- Humidity: 5 ÷ 90%

Features

- Measurement of liquid presence in two or more locations
- Large LCD display with blue backlight
- Easy and intuitive operating
- Power supply from building network - with battery memory backup
- Resistance display with 1 Ω accuracy
- Aesthetic and a modern look
- The possibility of sensor calibrating (long-line external electrodes)
- High load allows direct connection of high power electric devices
- 3-point control
- GUARD function - protection devices from damage
- TEST function - forced relay operations
- Keyboard lock
- Network RS485 or Ethernet communication

Available Models

- BL - backlight
- NW - network communication

Model	Net	Gross
IB-Tron 1000FLOW	22,00 EUR	26,84 EUR
IB-Tron 1000FLOW-BL	25,00 EUR	30,50 EUR
IB-Tron 1000FLOW-BL-NW	28,50 EUR	34,77 EUR

How It's Works

To maintain set temperature inside the building controller calculates what should be radiator/floor supply temperature and its changing it dynamically. The value of supply temperature depends of outside temperature, demand room/floor temperature and heating curve, which should be chosen depending of type of heating and thermal parameters of the building.

Using weather compensator system responds well in advance to fluctuations of external temperature, takes full advantage of thermal inertia of the building and reduces internal temperature fluctuations. At the same time minimizes the timings of heating device (lengthens their lifespan).

Features

- Large LCD display with blue backlight
- Easy and intuitive operating
- Comprehensive programming of heating process in week cycle
- Three adjustable temperatures:
  - » Comfort
  - » Economy
  - » Holiday
- Power supply from building network - with battery memory backup
- Manual and automatic control mode
- Two sensors
- Temp. display with 1 °C accuracy
- Summer mode (auto-ending process of heating)
- 10 factory heating curves and 5 user defined
- Adjustable hysteresis
- Aesthetic and a modern look

IB-Tron 401

One zone, programmable weather compensator

Technical Data

- Power consumption: < 2 W
- Storage temperature: -20 ÷ 50 °C
- Visible temperature: -20 ÷ 140 °C
- Accuracy: ± 1 °C
- Hysteresis: 1 ÷ 5 °C
- Max load: 400 W
- Power supply: 230V AC
- Display [mm]: 95x105x22

Available Models

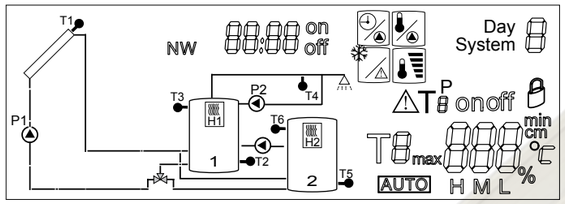
- IB-Tron 401L -linear control (only on/off, open/close)
- IB-Tron 401P - proportional control (partial opening of valves and actuators 3-point controlled)

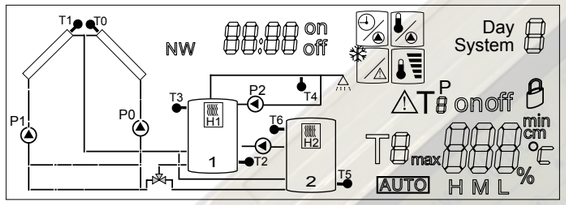
Model	Net	Gross
IB-Tron 401L	62,50 EUR	76,25 EUR
IB-Tron 401P	62,50 EUR	76,25 EUR

IB-Tron 4000 SOL

Multisystem solar controller

Sample Systems





Available Models

- BL - backlight
- NW - network communication

Model	Net	Gross
IB-Tron 1000SOL-BL	63,00 EUR	76,86 EUR
IB-Tron 1000SOL-BL-NW	73,00 EUR	89,06 EUR

Features

- Independent control of 2 collectors
- Loading 2 tanks
- 7 temperature sensors
- Controls 7 different devices
- Solar pumps with automatic speed control. Speed of pumps is calculated in two ways (depends of user setting):
  - » according to optimal temperature difference
  - » according to optimal temperature
- Adjustable hysteresis
- Protection against low-temperature of collectors
- Protection against high temperature in tanks
- Absolute protection against excessively high temperatures in the system
- Large (4”), backlit LCD display shows the current system
- Extra heating busters independently for each tank
- Controls fresh water circulation pump by modes:
  - » by temperature of circulation
  - » by time program of work and break time
- holiday function in two modes (depends of user setting):
  - » Winter (heating building only)
  - » Summer (cooling tanks)
- Bacteriological protection of tank
- GUARD function - protection devices from damage
- Reloading of tanks
- SMART START function
- Choice of how to load tanks:
  - » Highest efficiency
  - » Fresh water tank prioryty
- Mounting on DIN rail (10 modules)
- Network RS485 or Ethernet communication
- Many other features

TSC-8x0x - Technical Data

- Measuring element:
  - » TSC-82xx: NTC 10kΩ
  - » TSC-83xx: PT 1000
- Measuring range: -50÷200 °C
- Length of wire: 3 m
- Temperature resistance (continuous):
  - » TSC-8x00: -50÷100 °C
  - » TSC-8x01: -50÷125 °C
  - » TSC-8x02: -60÷400 °C
- Temp. resistance (instantaneous):
  - » TSC-8x00: do 100 °C
  - » TSC-8x01: do 140 °C
  - » TSC-8x02: do 550 °C

TSC Series 8x01 with silicon cable. The sensor is resistant to moisture.

TSC Series-8x02 on a special SHT cable resistance for very high temperatures. Sensor is not resistant to moisture.

TSC-8x1x - Technical Data

- Measuring element:
  - » TSC-821x: NTC 10kΩ
  - » TSC-831x: PT 1000
- Plastic cover resistance: 70 °C
- Plastic cover material: PA
- Mounting type: screw DN15
- Protection level: IP54
- Rod height:
  - » TSC-8x12: 120mm
  - » TSC-8x18: 180mm
- Rod material:
  - » brass (nickel-plated surface)

High sensitivity, stability, resistance to corrosion. Rod construction enables precise measurement of temperature directly in the liquid.

TSC-8x0x

Sensor TSC-8x00

Sensor TSC-8x01

Sensor TSC-8x02

TSC-8x1x

Rod sensor

Model	Net	Gross
TSC-8x00	3,50 EUR	4,27 EUR
TSC-8x01	5,30 EUR	6,67 EUR
TSC-8x02	6,30 EUR	7,69 EUR
TSC-8x12	10,00 EUR	12,20 EUR
TSC-8x18	12,50 EUR	15,25 EUR

THERMOSTATS, CONTROLLERS

P33A

Air differential switch

Basic Information

P33A series is designed to recognize the difference of air pressure on the two ends of the device with the possibility of its control.

Typical Applications

- Detection of stopped filters
- Detection of frosted duct and activation of thawing process
- Air controlling in ventilation and heat ducts
- Controlling of maximum air flow
- Monitoring of fans work
- Controlling of air heaters

Technical Data

- Environment: Air
- Temp range: -15÷60 °C
- IP level: IP54
- Material: Polycarbonate
- Pressure Range:
  - » P33A 30-300: 30÷300 Pa
  - » P33A 50-500: 50÷500 Pa
  - » P33A 100-1000: 100÷1000 Pa
- Dry-contact control

Model	Net	Gross
P33A 30-300	31,00 EUR	37,82 EUR
P33A 50-500	31,00 EUR	37,82 EUR
P33A 100-1000	31,00 EUR	37,82 EUR

Basic Information

Device is used to control and monitor the flow of liquid. Its turn on/off other device when flow is appears or stops.

Model HFS-25 is designed for use on liquid pipes. The sensor can be used with environments such as water, ethylene glycol and other liquids which do not cause corrosion, depending on the compatibility of the material.

Flow sensor is designed for use in heating systems, refrigeration and air conditioning. Applications: chilers, liquid-cooled condensers, indirect systems, installation of fresh hot water.

One model for pipes with diameter from 1 to 8 inches. Together with sensor there are complete set of different length blades adjusted depending on pipe diameter and flow rate.

Technical Data

- Maximum pressure: 10 Bar
- Temperature range: 4÷120 °C
- Thread: 1″
  - » For pipes from 1 up to 8 inches
- Maximum load: 15 A
- Calibration:
  - » Setting bolts under cover
- Dry-contact control

HFS-25

Liquid flow sensor

Net	Gross
26,00 EUR	31,72 EUR

IB-73xx

2-way motorized (with actuator) valve with spring return

Basic Information

2-way motorized valves with spring return are used wherever is required to cut flow of liquid. Controlled by power/no power signal (2-point control). In normal position (no power position) valve are closed when there is power valve is open. After disconnecting of power spring tension mechanism will automatically close the valve.

Valve is able to be control manually. This means manually opening the valve until the valve will be closed (valve under power or manually close), which corresponds to an automatic job.

NOTE! Due to the spring construction valve assembly has some limitations:

- In open position (under power position) of the valve actuator is working all the time and is warming up. The valve is designed to work in cyclical mode, short-term. Power position (without break) can be up to 20h.
- Higher pressure difference of liquid than the limit may cause the valve does not open or not close fully!
- flows thru valve are relatively low because spring-return construction (the value of Kv are in the table).

If this valve cannot be installed in the system because limitations- it is recommended to use IB-Qxx series of 2-way ball valve with actuator.

Technical Data

- Power consumption: 5 W
- Power supply: 230V AC
- Max pressure: 1,6 MPa
- Max pressure difference 300 kPa
- Opening time: 12 sec.
- Closing time: 5 sec.
- Temperature range: 1÷95 ºC
- Material: Brass

Model	Flow rate Kv [m3/h]	DN [mm]
IB-7315	2,2	15
IB-7320	3,0	20
IB-7325	6,7	25

Model	Net	Gross
IB-7315	22,00 EUR	26,84 EUR
IB-7320	22,00 EUR	26,84 EUR
IB-7325	25,00 EUR	30,50 EUR

Basic Information

3-way motorized valves with spring return are used wherever is required to redirect flow of liquid. Controlled by power/no power signal (2-point control). In normal position (no power position) valve is redirecting flow from bottom to left when there is power valve is redirecting flow from bottom to right. After disconnecting of power spring tension mechanism will automatically go back to normal position.

Valve is able to be control manually. This means manually opening the valve until the valve will be closed (valve under power or manually close), which corresponds to an automatic job.

Manually opening valve means that flow redirected in two directions simultaneously (from bottom to left and right)

NOTE! Due to the spring construction valve assembly has some limitations:

- In open position (under power position) of the valve actuator is working all the time and is warming up. The valve is designed to work in cyclical mode, short-term. Power position (without break) can be up to 20h.
- Higher pressure difference of liquid than the limit may cause the valve does not open or not close fully!
- flows thru valve are relatively low because spring-return construction (the value of Kv are in the table).

If this valve cannot be installed in the system because limitations- it is recommended to use IB-Qxx-3 series of 3-way ball valve with actuator.

IB-33xx

3-way motorized (with actuator) valve with spring return

Technical Data

- Power consumption: 5 W
- Power supply: 230V AC
- Max pressure: 1,6 MPa
- Max pressure difference 300 kPa
- Opening time: 12 sek.
- Closing time: 5 sek.
- Temperature range: 1÷95 ºC
- Material: Brass

Model	Flow rate Kv [m3/h]	DN [mm]
IB-3315	2,2	15
IB-3320	3,0	20
IB-3325	6,7	25

Model	Net	Gross
IB-3315	25,00 EUR	30,50 EUR
IB-3320	27,00 EUR	32,94 EUR
IB-3325	28,00 EUR	34,16 EUR

Motion Automatic

IB-Qxx

2-way ball valve with actuator (proportional 3-point control)

Technical Data

- Power consumption: 5 W
- Power supply: 230V AC
- Max pressure: 1,6 MPa
- Cycle time: 12 sek.
- Temperature range: 1÷95 ºC
- Material: Brass

Flow values are maximum for each diameter.

- IB-Q15 DN 15mm
- IB-Q20 DN 20mm
- IB-Q25 DN 25mm
- IB-Q32 DN 32mm

Model	Net	Gross
IB-Q15	26,00 EUR	31,72 EUR
IB-Q20	26,00 EUR	31,72 EUR
IB-Q25	35,00 EUR	42,70 EUR
IB-Q32	48,00 EUR	58,56 EUR

Basic Information

2-way motorized ball valves are used wherever is required to cut or limit flow of liquid. Proportional 3-point control allows to set valve in intermediate position (partially closed / open).

The valve has end switches, thus when valve is fully open or closed – control (power) signal is cut off permanently therefore valve may be used for continuous (long time) work.

3-point control. Wining:

- Black – common
- Red – closing
- Yellow – opening

Power (control signal) cut-off makes valve stop and its remain in the position which it was just before power cut-off (partially closed / open).

It is possible to derive close and open signals - additional wires on which phase appears when valve is in end positions (eg to turn on additional device when the valve is completely closed / opened).

There is a possibility of regulation of end positions of the valve which allows to set valve to never be completely closed.

Basic Information

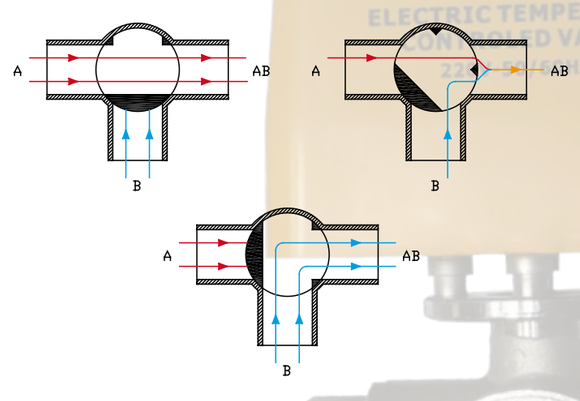
3-way motorized mixing ball valves are used wherever is required to redirect flow of liquid or mix it. Proportional 3-point control allows to set valve in intermediate position (mix).

The valve has end switches, thus when valve is fully in one position – control (power) signal is cut off permanently therefore valve may be used for continuous (long time) work.

3-point control.

Power (control signal) cut-off makes valve stop and its remain in the position which it was just before power cut-off (partiall position - mixing).

There is a possibility of regulation of end positions of the valve which allows to set valve to never be completely closed..



IB-Qxx-3

3-way mixing ball valve with actuator

Technical Data

- Power consumption: 5 W
- Power supply: 230V AC
- Max pressure: 1,6 MPa
- Cycle time: 12 sek.
- Temperature range: 1÷95 ºC
- Material: Brass

Flow values are maximum for each diameter.

- IB-Q15-3 DN 15mm
- IB-Q20-3 DN 20mm
- IB-Q25-3 DN 25mm

Model	Net	Gross
IB-Q15-3	48,00 EUR	58,56 EUR
IB-Q20-3	50,00 EUR	61,00 EUR
IB-Q25-3	56,00 EUR	68,32 EUR

MOTION AUTOMATIC

IB-Fxxx

Motorized (with actuator)
one surface air damper
(proportional 3-point control)

Available Models

- IB-F100 - DN 100mm
- IB-F125 - DN 125mm
- IB-F160 - DN 160 mm
- IB-F200 - DN 200 mm
- IB-F250 - DN 250 mm
- IB-F300 - DN 300 mm

Model	Net	Gross
IB-F100	16,00 EUR	19,52 EUR
IB-F125	16,00 EUR	19,52 EUR
IB-F160	16,00 EUR	19,52 EUR
IB-F200	17,00 EUR	20,74 EUR
IB-F250	20,00 EUR	24,40 EUR
IB-F300	22,00 EUR	26,84 EUR

Basic Information

Air damper for mounting into round ventilation duct. Isolated by special material with is thermal and soundproof isolation. They may be used wherever is required to cut or limit flow of air. Proportional 3-point control allows to set air damper in intermediate position (partially closed / open). Commonly used in ventilation, air heating, controlling speed of combustion in the fireplace (limited supply of fresh air to the input), Ground Heating Exchangers etc.

Air damper has end switches, thus when it is fully open or closed – control (power) signal is cut off permanently therefore valve may be used for continuous (long time) work.

3-point control. Wiring (5 wires):

- common (N)
- closing (L)
- opening (L)
- close signal (phase when air damper is closed)
- ground

Power (control signal) cut-off makes air dumper stop and its remain in the position which it was just before power cut-off (partially closed / open).

Technical Data

- Power supply: 230V AC
- End switches
- Up to 70 °C

Basic Information

Thermoelectric actuator are mounted on valves with pin (eg thermostatic valves at radiators), floor and radiator distributors, etc.

Actuator without power is pressing valve pin (valve is closed). After power connection actuator release valve pin and thus opens the valve (NC). There are also available valves normally open (NO).

Actuator is 2-point control (for NC model: connected to power - valve is open, no power - valve is closed. NO model works in opposite way).

Actuator works on principle of heating and cooling element that caused the press and release of valve pin. Process of opening and closing is not immediate, and the response time depends of ambient temperature of actuator. On average valve is fully open/closed in about 3 minutes. When actuator is connected to power it is warm and this is a normal operation of actuator. Actuator is designed for continuous (long time) work (when connected to power).

Mounting actuator enables control of temperature in room, on surface of the floor, in tank etc, by an external device such as room, floor thermostat etc.

Power supply is 230V.

Suitable for all thermostatic valves and distributor from our offer.

IB-A 01

Thermoelectric actuator for
distributors and radiators

Available Models

- IB-A 01 NC - normal closed
- IB-A01 NO - normal opened

Model	Net	Gross
IB-A01-NC	19,00 EUR	23,18 EUR
IB-A01-NO	19,00 EUR	23,18 EUR

Motion Automatic

IB-6061

Actuator for air dumpers and valves

Basic Information

Actuator for single and multi surface air dumpers and for valves. Commonly used in ventilation, air heating, controlling speed of combustion in the fireplace (limited supply of fresh air to the input), Ground Heating Exchangers etc. For heating and cooling installations. Proportional control allows to set actuator in intermediate position (partially closed / open). Available versions with digital 3-point control and with analog 0. .10 V control. Easy mounting directly on the axis of air dumper/valve by using a universal clamp. Actuator is protected against overload, does not require end switches and stops automatically when it achieve bumper. It is possible to change angle of rotation.

Property/Model	04D	08D	16D	24D	04A	08A	16A	24A
Torque [Nm]	4	8	16	24	4	8	16	24
Maximum Area [m²]	1	2	4	6	1	2	4	6
Time of cycle for 90° [s]	35	35	80	125	35	35	80	125
Angle	0 ÷ 90°							
Power supply	24VAC/24VDC; AC230V 50/60 Hz; AC110V 50/60 Hz							
Power consumption [W]	2,5	6,5			2,5	7,5		
Plastic cover	ABS							
Work temperature	-20 ÷ 50°C							
Storage temperature	-40 ÷ 80°C							
Humidity	0 ÷ 90%							
IP level	IP44							
Noise	< 45 dB							
Weight [kg]	0,7	1,1			0,7	1,1		
Control	Digital 3-point				Analog 0 ÷ 10V			

Price on request

IB-Sol vacuum tube solar collectors

Basic Information

Research of solar resources in North Europe have shown that solar power can be obtained even with value more than 1100kWh/m². In southern part of Europe obtained power are much bigger values exceed 2000kWh/m². The simplest device for practical use of this energy is solar collector.

Very popular use of solar energy is to use it for heating fresh water and for central heating. Properly designed and mounted solar installation can support 50÷80% of annual demand for energy for fresh water heating and about 30% heating for building. Completely free energy!

Very rarely we use 100% possibility of solar collector, that's why solar installations are increasingly used for heating water in swimming pools.

IB-Sol Vacum tube solar collectors are latest and most modern product in the field of solar heating technology.

Features

- High-quality two-surface vacuum tubes made of boron-silicon glass (3,3) provide an excellent thermal insulation and high resistance to mechanical impact.
- Resistance to hail diameter of 25mm
- Absorber efficiency: 96%
- Emission (reflection) efficiency: 6%
- Vacuum: <0,005 Pa
- Special absorption layer ALN/AIN-SS/CU with the addition of copper (it is successor of AL/N/AL with greater efficiency up to 12%) with excellent absorption of solar direct and diffused radiation.
- Copper heat-pipes - fast heat transfer
- Main condenser is silver brazed – its make completely heat exchange and enables work under pressure
- Shape of receiving tube makes turbulence flow which makes optimum heat transfer
- Mineral wool thermal insulation
- Main exchanger is made of copper and all other elements made of stainless steel, that provides long-term operation and aesthetic appearance.
- High efficiency for whole year in summer and winter
- Even after damage or destruction of one or more tubes, the collector still works. Replacing pipes is easy and simple. Removing the tube does not result in an outflow of liquid.

IB-Sol

Heat-Pipe vacuum tube solar collectors

Technical Data - Collector

Parameter/Model	22-58	30-58
Length of tube	1,8 m	
Diameter of tube	58 mm	
Number of vacuum tubes [pcs]	22	30
Total weight [kg]	84	110
Total area [m^2]	3,64	4,92
Absorber area [m^2]	1,770	2,414
Aperture area [m^2]	2,053	2,799
Optical efficiency	0,764	0,768
1st order heat loss coefficient [W/m^2K]	1,442	1,437
2nd order heat loss coefficient [W/m^2K^2]	0,0128	0,0126
Collector capacity [dm^3]	1,33	1,77
Daily performance** [l/dzień]	200	300
Maximum work pressure [Bar]	6	
Heat gain*** [kW]	1,280	1,745

**) Assuming average 80% gain of hot water from solar energy, for ΔT=40 °C. This value is used for selection of tank.

***) For G=1000W/m^2 and ΔT = 30 °K

Model	Net	Gross
IB-Sol 22-58	540,00 EUR	658,80 EUR
IB-Sol 30-58	800,00 EUR	976,00 EUR

Basic Information

Basic element of IB-Sol vacuum collectors are two-wall vacuum tubes, which are placed in heat-pipe. Vacuum tubes are mounted parallel to the mounting frame and connected with heat receiver.

Each solar vacuum tube is made two-surface tube made of boron-silicon glass. Between two surfaces is vacuum, which is an excellent insulator and prevents heat loss (like terms).

Heat pipe is mounted inside the vacuum tube together with an aluminum radiator, which is for increase reception of heat from the absorber.

Inside heat pipe is liquid having a boiling point on 25 °C. Above this temperature the liquid begins to boil, steam rises to the upper ends of heat pipe, where heat is transferred to glycol and after that it is condense and flows to the bottom - this process is cyclical.

Technical Data - Tube

Outer tube diameter	58 mm
Inner tube diameter	47 mm
Glass thickness	1,6 mm
Length of tube	1,8 m
Transparency	92%
Absorption material	ALN/AlN-SS/CU
Absorption efficiency	96%
Emission (reflection) efficiency	<6%
Vacuum	<0,005 Pa
Stagnation temperature	250 °C
Resistance for destruction*	25mm

*) This means resistance for impact of given diameter hail

Basic Information

Next generation of heat pipe vacuum tube collectors is vacuum tube with high efficiency SHCMV (Super Heat Conduction Metal Vacum Tube).

Construction of SHCMV tubes is radically different from heat pipe tubes, but principle of receive heat from the pipes is the same. Main difference is how heat is absorbed, in SHCMV tubes absorption element is special squiggly plate as heat storage and covered with high efficiency absorber. In addition entire SHCMV tube is filled with vacuum, thanks to the construction SHCMV tube is 40% more efficient than regular heat-pipe tube. SHCMV tubes much more efficiently absorb scattered radiation resulting in noticeable difference in cloudy days.

Technical Data - Tube

Parameter/Model	DN 70
Outer tube diameter	70 mm
Glass thickness	2,0 mm
Length of tube	1,7 m
Transparency	92%
Absorption material	ALN/AlN-SS/CU
Absorption efficiency	>92%
Emission (reflection) efficiency	<8%
Vacuum	<0,005 Pa
Stagnation temperature	200 °C
Resistance for destruction*	25mm

*) This means resistance for impact of given diameter hail

SOLAR TECHNOLOGY

IB-Sol

SHCMV solar collectors Super Heat Conduction Metal Vacum Tube

Technical Data - Collector

Parameter/Model	10-70	22-70
Length of tube	1,7 m	
Diameter of tube	70 mm	
Number of vacuum tubes [pcs]	10	22
Total weight [kg]	38	84
Total area [m^2]	1,74	3,83
Absorber area [m^2]	1,041	2,290
Aperture area [m^2]	1,091	2,400
Optical efficiency	0,744	0,748
1st order heat loss coefficient [W/m^2K]	2,001	1,996
2nd order heat loss coefficient [W/m^2K^2]	0,0114	0,0112
Collector capacity [dm^3]	1,33	1,77
Daily performance** [l/dzień]	140	300
Maximum work pressure [Bar]	6	
Heat gain*** [kW]	0,698	1,536

**) Assuming average 80% gain of hot water from solar energy, for ΔT=40 °C. This value is used for selection of tank.

***) For G=1000W/m^2 and ΔT = 30 °K

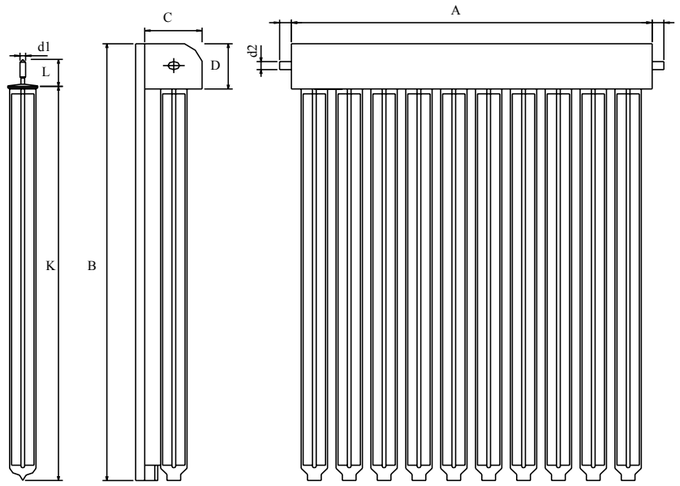
Model	Net	Gross
IB-Sol 10-70	340,00 EUR	414,80 EUR
IB-Sol 22-70	700,00 EUR	854,00 EUR

SUMMARY

Parameter/Model		22-58	30-58	10-70	22-70
K	Length of tube [mm]	1800		1700	
L	Tube exchanger length [mm]	65			
d1	Tube exchanger diameter [mm]	14			
A	Width [mm]	1820	2460	994	2187
B	Height [mm]	2000		1800	
C	Collector heat exchanger width [mm]	150			
D	Collector heat exchanger height [mm]	140			
M	Connection pipe length [mm]	60			
d2	Connection pipe diameter [mm]	Cu 22			
Number of vacuum tubes [pcs]		22	30	10	22
Diameter of tube [mm]		58		70	
Total weight [kg]		84	110	38	84
Total area [m²]		3,64	4,92	1,74	3,83
Absorber area [m²]		1,770	2,414	1,041	2,290
Aperture area [m²]		2,053	2,799	1,091	2,400
Optical efficiency		0,764	0,768	0,744	0,748
1st order heat loss coefficient [W/m²K]		1,442	1,437	2,001	1,996
2nd order heat loss coefficient [W/m²K²]		0,0128	0,0126	0,0114	0,0112
Daily performance** [l/dzień]		200	300	140	300
Heat gain*** [kW]		1,280	1,745	0,698	1,536

**) Assuming average 80% gain of hot water from solar energy, for ΔT=40 °C. This value is used for selection of tank.

***) For G=1000W/m² and ΔT = 30 °K

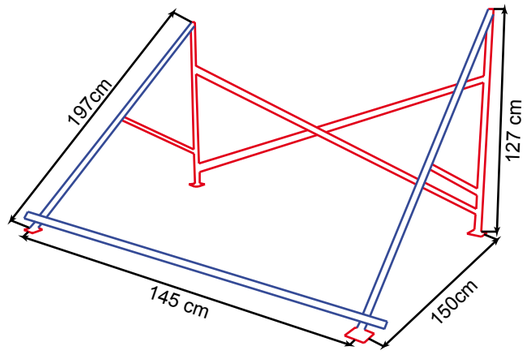


BASIC INFORMATION

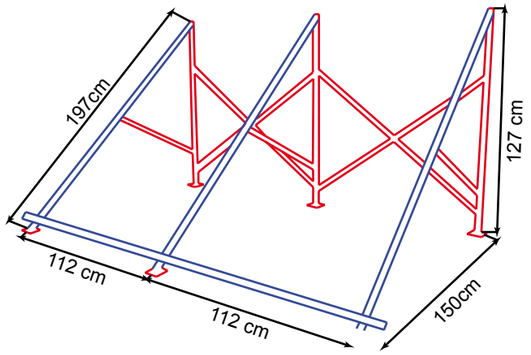
Stand and all his parts (bolts nuts etc) are executed from stainless steel which guarantees practically unlimited exploitation.

After opposite assembly stand becomes hanger, which allows mount collector on wall (facade) of building.

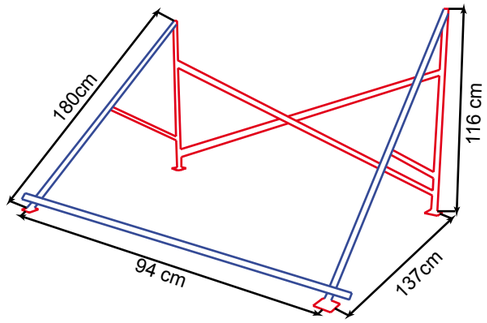
for IB-Sol 22-58



for IB-Sol 30-58

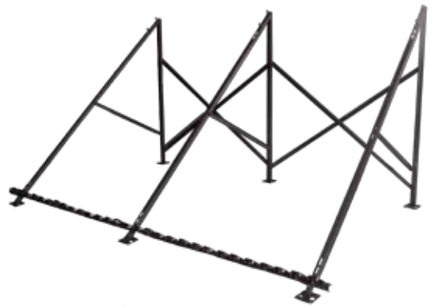


for IB-Sol 10-70

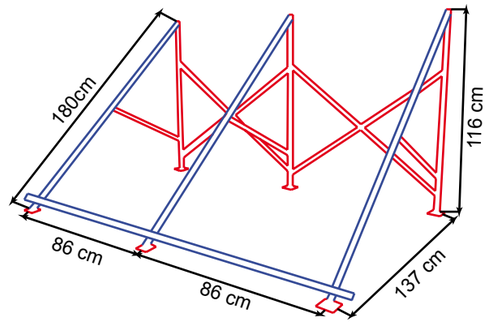


IB-Sol

Stand/hanger for solar collectors



for IB-Sol 22-70

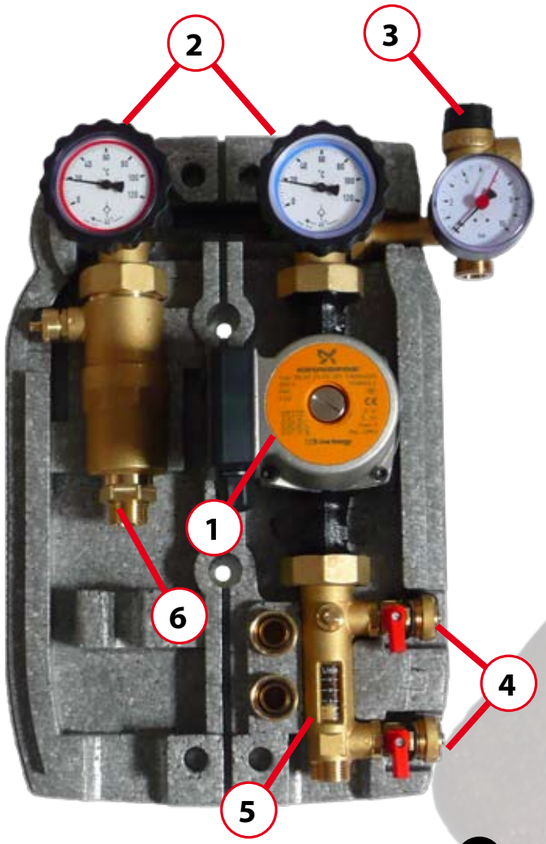


Model	Net	Gross
for IB-SOL 22-58	65,00 EUR	79,30 EUR
for IB-SOL 30-58	87,00 EUR	106,14 EUR
for IB-SOL 10-70	55,00 EUR	67,10 EUR
for IB-SOL 22-70	65,00 EUR	79,30 EUR

SOLAR TECHNOLOGY

IB-PG 01

Pump Group double, rotameter (flow meter), vent



Basic Information

Complete pump group primarily designed for solar or similar systems (solar group). Whole set twisted and pressure checked. Ready for installation. Assembly in 15 minutes. Whole set in aesthetic thermal isolation.

Group includes:

1. Circulation pump 25-60 type
2. Two 3-way ball valves witch thermometer socket and two contact thermometers (20÷150 °C) red and blue colour. In 3-way valves are also integrated one-way valves with manual lock (so-called gravity breake) to prevent gravitational flow in system
3. Complete safety group:
   - » safety valve 6 bar
   - » manometer 0-10 bar
   - » connection for expansion vessel
4. Valves for filling, emptying and rinsing of installation
5. Rotameter (flow meter) 1-19 l/m, with a separate scale for glycol and water. Rotameter is used to set specific value of flow in installation
6. Solar vent. A special design for solar installations. Vent is available optionally.

Model	Net	Gross
IB-PG 01	275,00 EUR	335,50 EUR

IB-PG 02

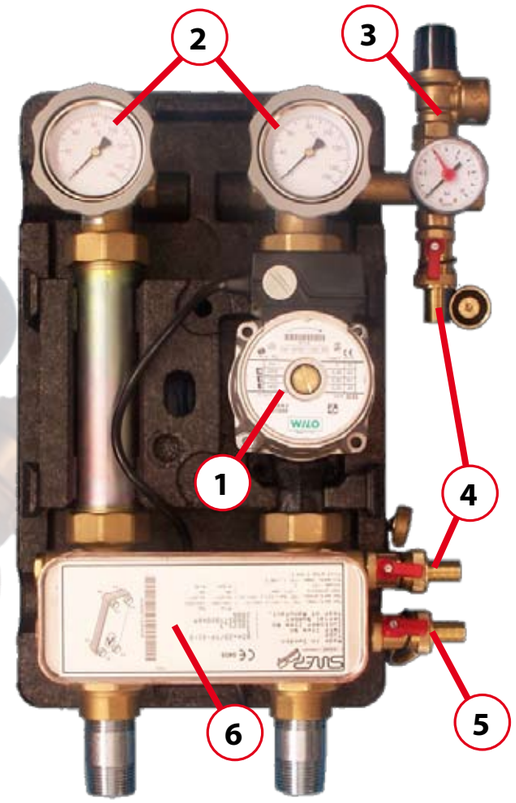
Grupa pompowa podwójna, wymiennik

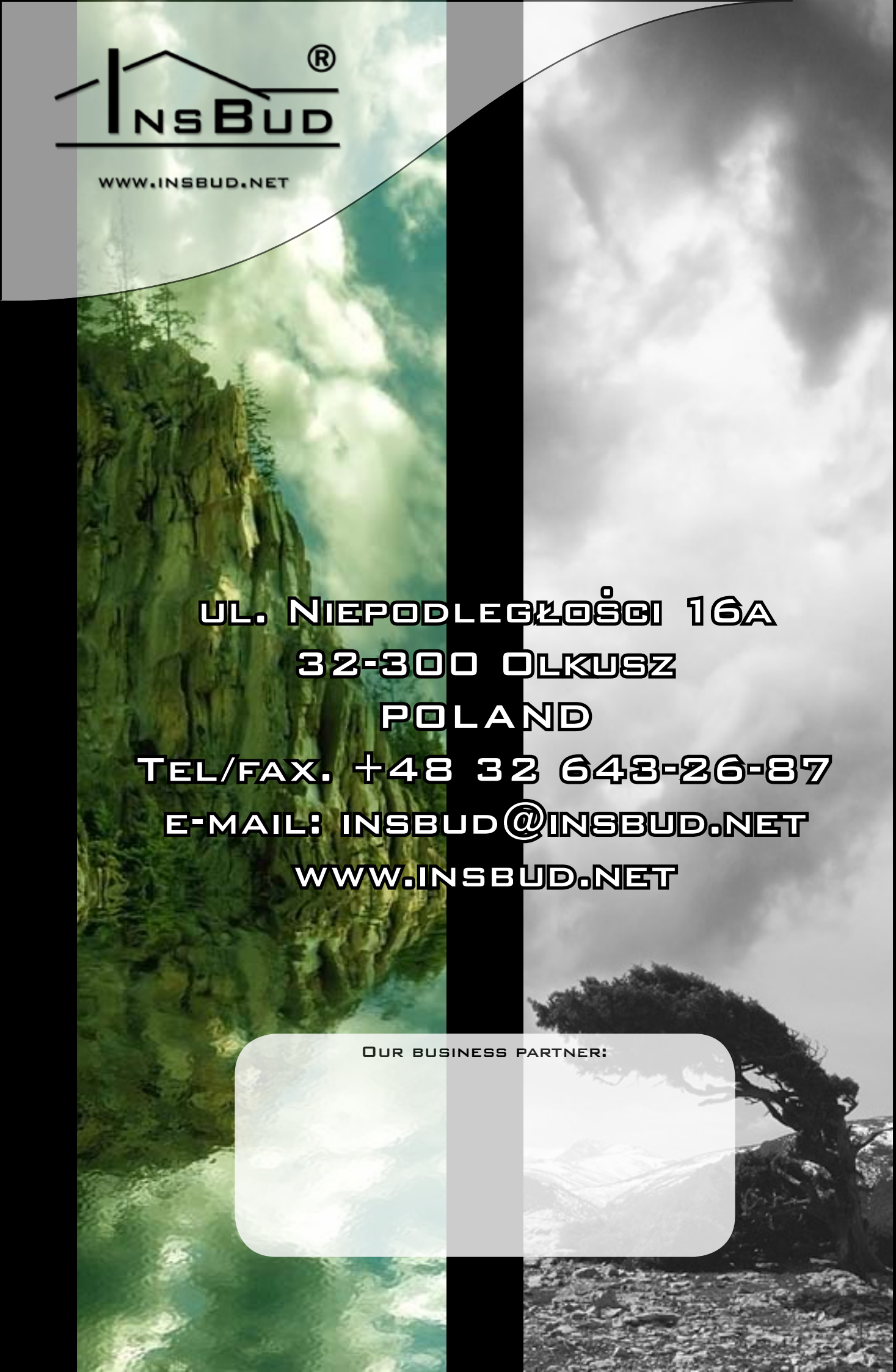
Basic Information

Complete pump group primarily designed for solar or similar systems (solar group). Whole set twisted and pressure checked. Ready for installation. Assembly in 15 minutes. Whole set in aesthetic thermal isolation.

Group includes:

1. Circulation pump 25-60 type
2. Two 4-way ball valves witch thermometer socket and two contact thermometers (20÷150 °C) j red and blue colour. In 3-way valves are also integrated one-way valves with manual lock (so-called gravity breake) to prevent gravitational flow in system
3. Complete safety group:
   - » safety valve 6 bar
   - » manometer 0-10 bar
   - » connection for expansion vessel
4. Valves for filling, emptying and rinsing of installation (before plate exchanger)
5. Valves for filling, emptying and rinsing of installation (after plate exchanger)
6. Plate heat exchanger (many sizes).





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