Centrometal d.o.o. Glavna 12, 40306 Macinec, Croatia
retail sale tel: +385 40 372 640
central tel: +385 40 372 600, fax: +385 40 372 611
service tel: +385 40 372 622, fax: +385 40 372 621

www.centrometal.hr
e-mail: servis@centrometal.hr

Centrometal HEATING TECHNIQUE

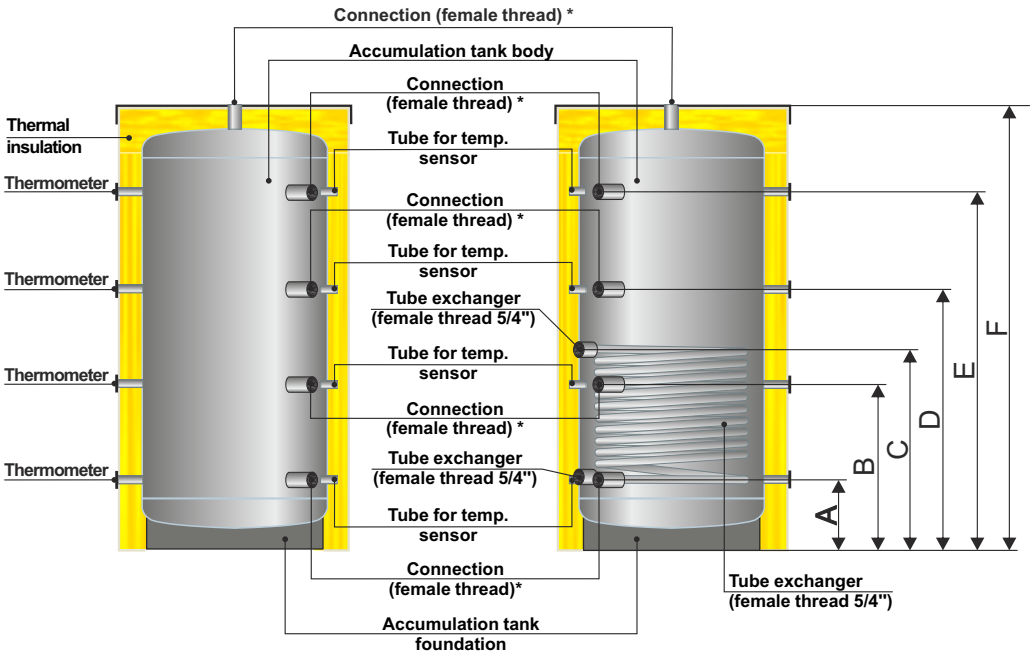
***Centrometal d.o.o.* - Glavna 12, 40306 Macinec, Croatia, tel: +385 40 372 600, fax: +385 40 372 611**

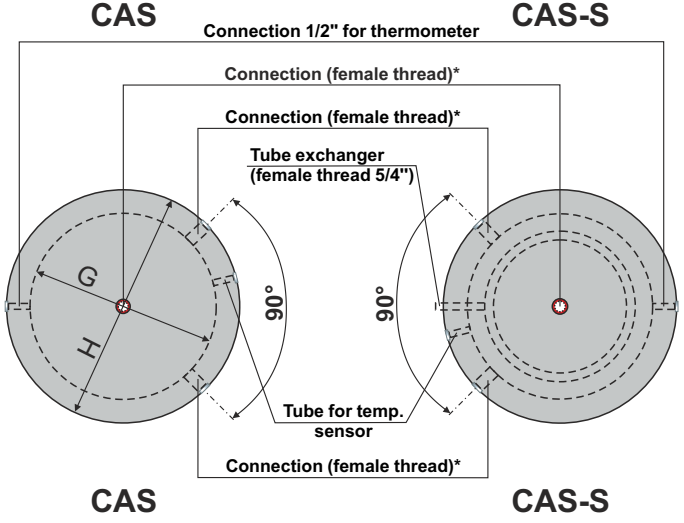
TECHNICAL MANUAL

for instalation, use and maintenance
of the water accumulation tanks

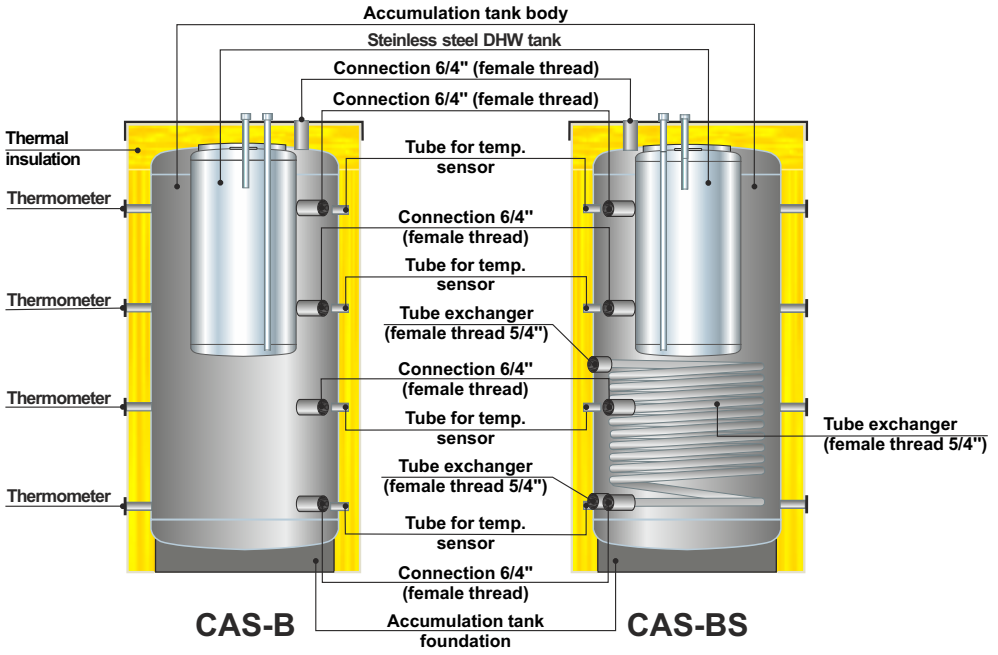
CAS; -S; -B; -BS

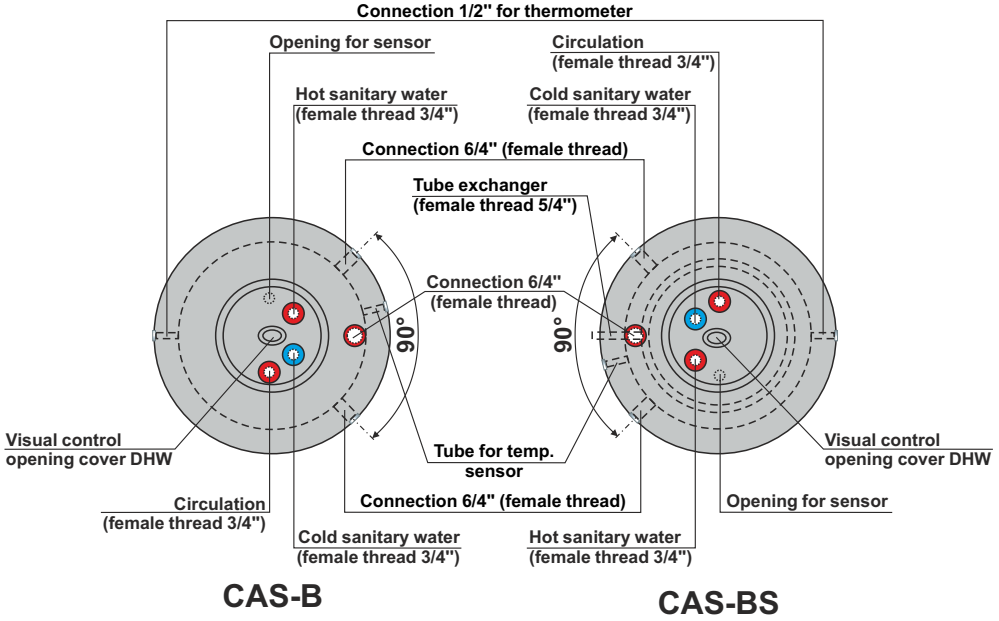
TUCAS1-10-2013-eng





* Connection 6/4" (cas 501- 2001), 2" (CAS 3001- 4001) (female thread)

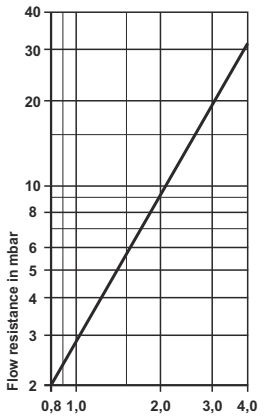

Accumulation tank body
Steinless steel DHW tank
Connection 6/4" (female thread)
Connection 6/4" (female thread)
Thermal insulation
Thermometer
Thermometer
Thermometer
Tube for temp. sensor
Connection 6/4" (female thread)
Tube for temp. sensor
Tube exchanger (female thread 5/4")
Connection 6/4" (female thread)
Tube for temp. sensor
Tube exchanger (female thread 5/4")
Tube for temp. sensor
Connection 6/4" (female thread)
Accumulation tank foundation
Tube exchanger (female thread 5/4")
CAS-B
CAS-BS


Connection 1/2" for thermometer
Opening for sensor
Circulation (female thread 3/4")
Hot sanitary water (female thread 3/4")
Cold sanitary water (female thread 3/4")
Connection 6/4" (female thread)
Tube exchanger (female thread 5/4")
Connection 6/4" (female thread)
90°
90°
Visual control opening cover DHW
Tube for temp. sensor
Visual control opening cover DHW
Circulation (female thread 3/4")
Connection 6/4" (female thread)
Opening for sensor
Cold sanitary water (female thread 3/4")
Hot sanitary water (female thread 3/4")
CAS-B
CAS-BS

Tip		CAS							CAS-S			CAS-BS		
		501	801	1001	1501	2001	3001	4001	501	801	1001	501	801	1001
Volume	(lit.)	475	740	940	1435	1920	2960	3820	475	740	940	475	740	940
Tank body diameter G	(mm)	650	790	790	1000	1150	1250	1400	650	790	790	650	790	790
Outer diameter H	(mm)	850	990	990	1200	1350	1450	1600	850	990	990	850	990	990
Total height F	(mm)	1670	1750	2150	2100	2180	2695	2790	1670	1750	2150	1670	1750	2150
Connections	(R)	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"
Max. operating press.	(bar)	3	3	3	3	3	3	3	3	3	3	3	3	3
Max. operating temp.	(°C)	100	100	100	100	100	100	100	100	100	100	100	100	100
Min. height of the room	(mm)	1870	1950	2350	2300	2335	2915	3015	1870	1950	2350	1870	1950	2350
Empty acc. body weight	(kg)		99	149					-	-	-	-	-	215
Empty acc. tank weight	(kg)		112	164					-	-	-	-	-	230
DHW tank capacity	(lit.)	-	-	-	-	-	-	-	-	-	-	125	170	170
Max. oper. press. DHW tank	(bar)	-	-	-	-	-	-	-	-	-	-	6	6	6
DHW connections	(R)	-	-	-	-	-	-	-	-	-	-	3/4"	3/4"	3/4"
Heat exchanger surface	(m^2)	-	-	-	-	-	-	-	1,9	2,6	3,2	1,9	2,6	3,2
Heat exchanger volume	(lit.)	-	-	-	-	-	-	-	10,5	14	17,5	10,5	14	17,5
Thermal insulation	(mm)	100	100	100	100	100	100	100	100	100	100	100	100	100
Height A	(mm)	230	320	320	320	335	370	420	230	320	320	230	320	320
Height B	(mm)	610	670	800	785	800	1000	1050	610	670	800	610	670	800
Height C	(mm)	-	-	-	-	-	-	-	630	870	970	630	870	970
Height D	(mm)	1000	1020	1290	1255	1270	1630	1680	1000	1020	1290	1000	1020	1290
Height E	(mm)	1380	1370	1770	1720	1735	2260	2310	1380	1370	1770	1380	1370	1770

Type		CAS-B		
		501	801	1001
Volume	(lit.)	475	740	940
Tank body diameter G	(mm)	650	790	790
Outer diameter H	(mm)	850	990	990
Total height F	(mm)	1670	1750	2150
Connections	(R)	6/4"	6/4"	6/4"
Max. operating press.	(bar)	3	3	3
Max. operating temp.	(°C)	100	100	100
Min. height of the room	(mm)	1870	1950	2350
Empty acc. body weight	(kg)	-	137	176
Empty acc. weight	(kg)	-	150	191
DHW tank capacity	(lit.)	125	170	170
Max. oper. press. DHW tank	(bar)	6	6	6
DHW connections	(R)	3/4"	3/4"	3/4"
Heat exchanger surface	(m^2)	-	-	-
Heat exchanger volume	(lit.)	-	-	-
Thermal insulation	(mm)	100	100	100
Height A	(mm)	230	320	320
Height B	(mm)	610	670	800
Height C	(mm)	-	-	-
Height D	(mm)	1000	1020	1290
Height E	(mm)	1380	1370	1770

Pict. 1. Flow resistance of CAS



10.0. CHARACTERISTICS OF ACCUMULATION TANKS CAS, CAS-B, CAS-S i CAS-BS

- They are manufactured from certificated metal sheet in compliance with the ISO 9001/2000 norm.
- They are very good thermal insulated (100 mm), the outer cover is made of artificial leather.
- It is possible to connect the tanks mutually in order to increase total accumulation of the system.
- They are produced in six different volumes and four version:
  - **CAS 501** (475 lit.), **CAS 801** (740 lit.), **CAS 1001** (940 lit.), **CAS 1501** (1435 lit.) and **CAS 2001** (1920 lit.), **CAS 3001** (2960 lit.) i **CAS 4001** (3820 lit.) - water accumulation tank
  - **CAS-S 501** (475 lit.), **CAS-S 801** (740 lit.), **CAS-S 1001** (940 lit.) - wat. acc. tank with inbuilt solar tube heat exchanger
  - **CAS-B 501** (475 lit.), **CAS-B 801** (740 lit.), **CAS-B 1001** (940 lit.) - wat. acc. tank with inbuilt stainless steel DHW wat. tank
  - **CAS-BS 501** (475 lit.), **CAS-BS 801** (740 lit.), **CAS-BS 1001** (940 lit.) - wat. acc. tank with inbuilt DHW wat. tank and heat exch.

8.0. START UP

8.1. START UP - CAS / -S 501, CAS / -S 801, CAS / -S 1001, CAS / -S 1501, CAS / -S 2001, CAS - 3001, CAS - 4001

It is necessary to perform (check, if you have already performed) all actions in accordance with points 1.0. to 7.0. these instructions.
Max. working pressure in the accumulation tank connected to the installation of central heating must be limited with built in safety valve with max. openning pressure 3 bar.

8.2. START UP - CAS / -S 501, CAS / -S 801, CAS / -S 1001, CAS / -S 1501, CAS / -S 2001

It is necessary to perform (check, if you have already performed) all actions in accordance with points 1.0. to 7.0. these instructions.
Max. working pressure in the accumulation tank connected to the installation of central heating must be limited with built in safety valve with max. openning pressure 3 bar.
Max. working pressure in the stainless steel DHW water tank connected to water supply system must be limited with built in safety valve with max. openning pressure 6 bar.
Before filling the tank **CAS-B** and **CAS-BS** with boiler water (heating system side), you must fill sanitary water heater tank DHW on pressure **min. 1,5 bar.**

9.0. USE, CLEANING AND MAINTENANCE

The water accumulation tank **CAS, CAS-B, CAS-S and CAS-BS** have to be cleaned as needed, by discharge the accumulation tank.
Before filling the tank **CAS-B** and **CAS-BS** with boiler water (heating system side), you must fill sanitary water heater tank on pressure **min. 1,5 bar.** Min. pressure of 1,5 bar inside the sanitary water heater tank should be kept during the usual work.

1.0. PRESENTATION

Water accumulation tanks **CAS, CAS-B, CAS,S and CAS-BS** are manufactured with the most modern welding technology, made from high quality steel. They are made in seven different volumes (475, 740, 940, 1435, 1920, 2960 and 3820 litres) and four different versions: water accumulation tank (**CAS**), with inbuilt stainless steel domestic hot water (DHW) tank (**CAS-B**), with inbuilt tube heat exchanger for solar collector connection (**CAS-S**) and with inbuilt stainless steel DHW tank and tube heat exchanger (**CAS-BS**). We highly recommend You to follow our technical manual with attention which brighten the construction, operation, instalation and maintenance of the water accumulation tank in order to assure a long life and proper operation condition of the product.

2.0. USE

Accumulation tanks **CAS, CAS-B, CAS-S and CAS-BS** are intended for accumulation of energy (for example in the central heating systems with solid fuel boilers for accumulation of thermal energy) and provide more economical and efficient operation of the system in which they are installed. Lot of versions of the water accumulation enables simultaneously use of more renewable energy sources what makes them ecologically and energetic very acceptable.

3.0. STATUS AT DELIVERY

For easier transport and positioning into boiler room, accumulation tanks **CAS, CAS-B, CAS-S i CAS-BS** are not supplied with built-in thermal insulation but separately as follows:
- **accumulation tank body**
- **thermal insulation packed in a protective PVC foil**
- **thermometer (4 pcs.), rosette (4 pcs. red, 3 pcs. blue and 4 pcs. black) packed in PVC bag**

4.0. INSTALATION

Accumulation tanks CAS, CAS-B, CAS-S and CAS-BS are delivered on a wooden pallet. Before placing the accumulation tank in the boiler room it needs to be removed from the wooden pallet. Installation and assembly of accumulation tank and installation of additional equipment on the tank must be performed by a qualified person. Accumulation tank need to be placed on a horizontal solid foundation for the anticipated load that causes the full weight of the accumulation tank. Boiler room must be protected from freezing. Accumulation tank has to be positioned so that it can be properly connected and simultaneously, enabling tending of accumulation tank control during operation. For mounting of thermal insulation on the accumulation tank see "Technical instructions for installation of thermal insulation and jacket for accumulation tank CAS, S-,-B,-BS" which are delivered with thermal insulation of the tank.

5.0. PLATE WITH BASIC INFORMATION ABOUT THE PRODUCT

Picture 2. Position of the plate on the accumulation tank

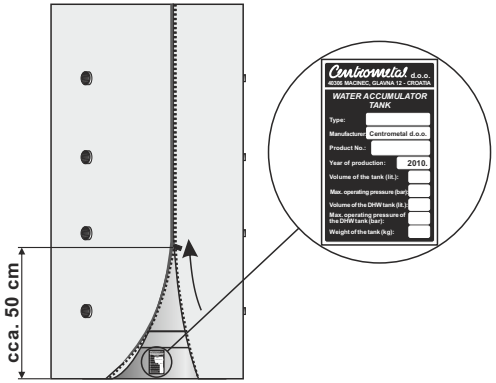


Plate of accumulation tank is attached to its foundation and covered with insulation. In order to reach the plate the zipper must pulled up (open) approx. 50 cm and separate thermal insulation (see Picture 2).

6.0. INSTALLATION OF THE ACCUMULATION TANK TO CENTRAL HEATING SYSTEM

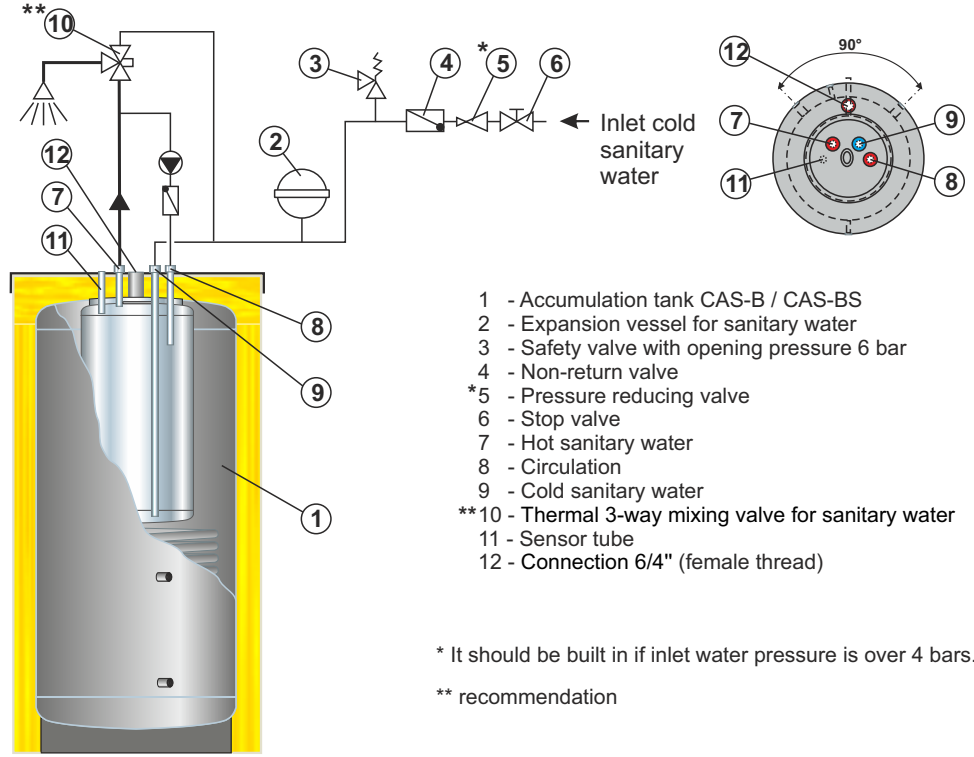
Connection of the accumulation tank to central heating system should be done by recommendation and schematic drawing from boiler (heat source) manufacturer, according to this technical manual and good technical practice.

7.0. CONNECTION OF THE ACCUMULATION TANK CAS-B AND CAS-BS TO WATER SUPPLY INSTALLATION

Connection of stainless steel domestic hot water (DHW) tank positioned in the accumulation tank CAS-B / CAS-BS to water supply installation has to be done by an expert professional and all installation works have to be performed in accordance with available technical standards (Scheme 1.). Cold sanitary water supply line has to be connected to connection (9) (Scheme 1) (connection 3/4") and the connection (7) (Schema 1) (connection 3/4") is intended for disposal of hot sanitary water. Connection for circulation line (8) (connection 3/4") is located on the right side of the cold water connection. The following **has to be installed** at the entry of supply line of cold sanitary water in DHW tank:

- expansion vessel for sanitary water;
- safety valve with opening pressure of 6 bar;
- reducing valve which reduces cold sanitary water pressure to 4 bar (if its pressure is higher);
- non-return valve.

Scheme 1. Example of installation accumulation tank CAS-BS to water supply system



1 - Accumulation tank CAS-B / CAS-BS
2 - Expansion vessel for sanitary water
3 - Safety valve with opening pressure 6 bar
4 - Non-return valve
*5 - Pressure reducing valve
6 - Stop valve
7 - Hot sanitary water
8 - Circulation
9 - Cold sanitary water
**10 - Thermal 3-way mixing valve for sanitary water
11 - Sensor tube
12 - Connection 6/4" (female thread)

* It should be built in if inlet water pressure is over 4 bars.

** recommendation