



INSTALLATION AND MAINTENANCE MANUAL

AZIENDA CON
SISTEMA DI GESTIONE QUALITA'
CERTIFICATO DA DNV
ISO 9001

GLASSLINED ACCUMULATORS FOR AIR CONDITIONING / HEATING SYSTEMS

FROM 1500 L ONLY FOR CHILLED WATER

INSTALLATION AND MAINTENANCE MANUAL

This manual is intended for the installer and end user. It contains instructions on the correct installation, commissioning, operation, maintenance and disposal of the product. It must be handed over to the end user or the person responsible for the system after installation. Failure to observe the warnings and instructions contained in this manual will invalidate the warranty. Elbi S.p.A. cannot be held liable for damage to persons and/or property resulting from failure to comply with the instructions given below.

Product Description

Technical water storage tanks manufactured by Elbi S.p.A. are designed for the production of technical (non-sanitary) water supplied by one or more heat sources (thermal generator, heat pump, solar panel) using water (or alternatively a mixture of water and ethylene glycol up to a 50:50 ratio) as the heat transfer fluid. The technical water storage tank is designed to operate within a closed circuit for technical water (heating and/or cooling) using water (or alternatively a mixture of water and ethylene glycol up to a 50:50 ratio).

General prescriptions

The tank is designed according to good construction practice in accordance with the requirements of Directive 2014/68/EU, para. 4.3. The operating limits (temperature and pressure) are shown on the technical data label affixed to the tank, and must never be exceeded. The tank is also designed in accordance with the requirements of Directive 2009/125/EC and has been tested according to the provisions of EN 12897 Annex 2.

Where fitted, the stainless steel coil for instantaneous domestic hot water production is designed to operate within a domestic water circuit using water only. The domestic water characteristics for the proper operation of the storage tank are given in the *DHW CHARACTERISTICS* table. For anything not expressly indicated, refer to the current drinking water regulations in the country of installation.

It is recommended to consult the attached data sheets and consult the manufacturer if necessary.

General Warnings

Elbi S.p.A. is responsible only for the supply of the product, and not for the system and/or the correct installation of the product within it. Elbi S.p.A. is not responsible for unauthorized modifications to the product or the use of non-original spare parts.

Always check the compatibility of the product with the liquids circulating in the system.

Tanks manufactured by Elbi S.p.A. have a technical data label showing pressure and temperature limit values. Never exceed these values to avoid damage to the product and risks to people and property.

Always provide for proper grounding of the system and its parts.

Tanks manufactured by Elbi S.p.A. are not designed for applications under vacuum or with internal pressure lower than ambient pressure.

The connection schemes attached to these instructions are intended as purely indicative and not binding. Evaluation of the best system scheme for the use of the tank should be carried out by a licensed designer.

Installation

Installation must be carried out in accordance with the requirements of these instructions and according to the rule of art, by trained and qualified personnel acting on behalf of companies suitable to take responsibility for the whole installation, in accordance with the laws in force in the country of installation.

With the exception of the *ARZ* and *SC/E* series tanks, the product is designed to be installed indoors, sheltered from the weather. The product should not be used for non-fixed installations or transportation. However, the following recommendations apply to *ARZ* and *SC/E* series chilled water storage tanks.

Before proceeding with installation, make sure that:

- the installation room has a floor of adequate strength (or, in the case of wall installation, that the installation wall is capable of bearing the weight of the tank);
- the installation room has appropriate drains adequate for the volume of the tank;
- accesses to the room and internal spaces are such as to allow easy passage, installation and maintenance of the product;
- the other parts of the system (circulators, heat generators, etc.) are suitable for operation with the tank and comply with the legal requirements in force in the country of installation.

Before proceeding with the installation of the tank, proceed to remove it from the packaging and make sure of its condition. Do not proceed if damage to the same is found.

Always use suitable means for lifting and transporting the product. Carry out handling operations only with the tank empty.

Tank and inertial storage (where present) supply systems must be equipped with all safety devices necessary to ensure compliance with the tank's operating limits, including (but not necessarily limited to):

safety valves set at a pressure lower than the maximum pressures shown on the tank's technical data label;

if the system pressure is higher than the tank's maximum pressure, install a pressure reducing valve as far away from the tank as possible;

- shut-off and check valves;
- Appropriately sized expansion vessels;
- Thermostats set at a temperature lower than the maximum temperatures listed on the tank's technical data label.

Safety devices must be provided for all circuits (domestic hot water, heat exchanger, inertial storage).

For proper installation:

- 1) Make sure the system is cold and empty.
- 2) The tank should always be electrically grounded;
- 3) Place the tank in a stable position on a flat, even surface, providing space around it for maintenance activities. The product is not designed to support external loads from wind and/or earthquake.
- 4) Connect the tank to the system. The product is not designed to support vibration and/or loads through connections; therefore, the use of flexible fittings and/or vibration-damping couplings is recommended. It is always recommended to use dielectric fittings and in any case pay attention to possible electrochemical reactions when choosing the material used (e.g., do not use iron fittings on stainless steel tanks);



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1. 5) Proceed to load the tank and perform a leak test to check that the connections are tightened correctly.
2. 6) A circulator with sufficient flow rate and head for the requirement should be installed on the exchanger side.

Putting into service

Always flush the piping and equipment before commissioning. The heating side can be flushed using appropriate cleaning and corrosion-inhibiting solutions; the sanitary side can be flushed by simply flushing the circuit with a high flow rate for at least ten minutes.

Before starting loading:

- verify that all installation requirements have been met;
- verify that all heat sources are turned off;
- verify that all unused connections are closed with tight plugs;

Proceed with loading the system gradually, taking care to vent the air inside the system.

Once proper loading has been carried out, it is possible to put the system into operation and verify that all connections and piping are tight, and that all control and safety elements are functioning properly.

This manual should be given to the end user or plant manager.

Maintenance

Proper maintenance of the tank is the responsibility of the end user or plant manager.

Check that connections (and flanged connections, if present) are tightened correctly after a few days of operation.

Tank maintenance should be done under stationary, cold plant conditions, disconnected from any electrical supplies and with the tank emptied.

Always check the temperature and pressure conditions of the system before proceeding.

Maintenance should be done by a trained technician at a frequency of at least once a year or otherwise according to the laws in force in the country of installation.

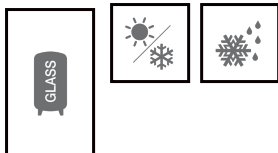
- Check the state of efficiency of all safety devices installed on the system.
- Check the precharge pressure of the expansion vessels and restore if necessary.

Disposal

Disposal of packaging is the responsibility of the company installing the product and/or end user.

At the end of the product life cycle, dispose of according to the regulations and laws in force in the country of installation. Components (metallic and non-metallic) should be given to operators authorized to recycle them.

The product should not be handled as household waste.



AR

GLASSLINED ACCUMULATORS FOR AIR CONDITIONING / HEATING SYSTEMS from 1500 L only for chilled water

96 - 5.129 litres

TREATMENT:

The glasslining treatment according to DIN 4753 makes the accumulator resistant to corrosive phenomena.
The glasslining treatment makes the cylinder suitable to contain hot water and resistant to corrosive phenomena.

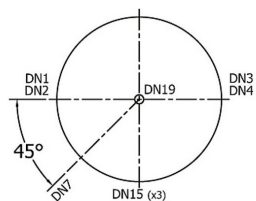
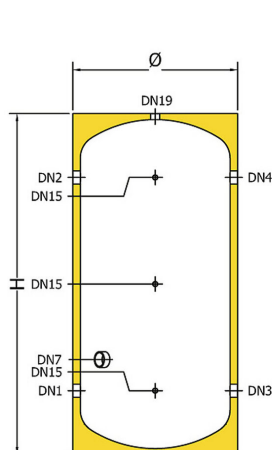
Installations

Use as a thermal flywheel in air conditioning systems to optimize the cooling inertia and increase the volume of chilled water.

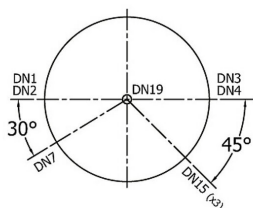
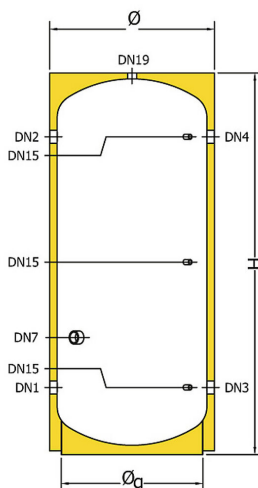
CHARACTERISTICS

MAX PRESSURE (mod. 100 - 1000)	10 bar
MAX PRESSURE (mod. 1500 - 5000)	6 bar

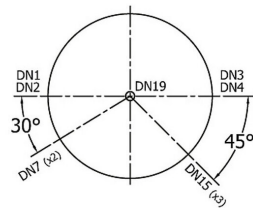
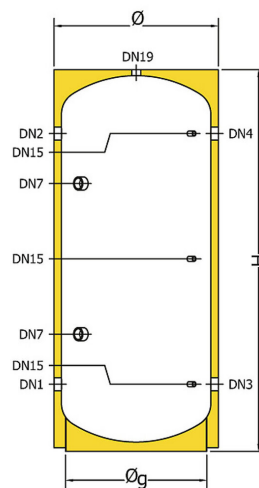
AR 100



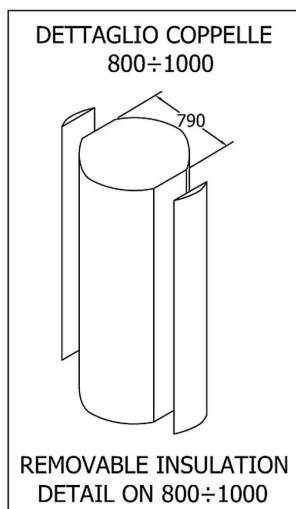
AR 200 - 500



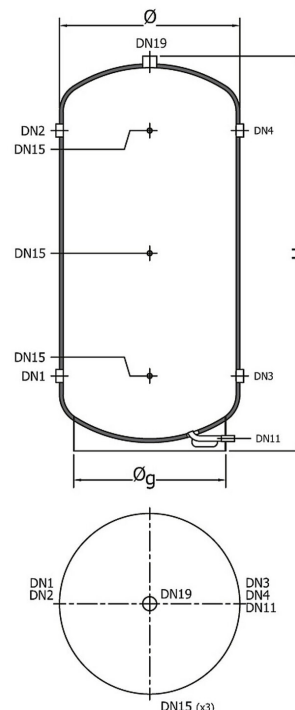
AR 800 - 1000



AR 800 - 1000 CUPS



AR 1500 - 5000



Keyword

DN	Description
DN1	Flow from chiller
DN2	Flow to chiller
DN3	Flow to heating system
DN4	Flow from heating system
DN7	Predisposition for immersion heater
DN11	Drain
DN15	Probe
DN19	Auxiliary connection

Model	Code	Cl. Energ.	St. loss W	Capacity L	Tmin	Tmax	P _{MAX}	H mm	Ø skirt mm	Ø mm	Pm mm
AR 100	A460L38 PGP55	A	35	99	-10°C	95°C	10	960		510	1090
AR 200	A460L47 PGP55	B	57	195	-10°C	95°C	10	1185	460	610	1350
AR 300	A460L51 PGP75	B	67	282	-10°C	95°C	10	1655	460	650	1800
AR 500	A460L55 PGP55	C	91	494	-10°C	95°C	10	1720	600	760	1900
AR 800	A460L60 PGP75	C	131	747	-10°C	95°C	10	1790	760	940	2050
AR 1000	A460L62 PGP75	C	136	868	-10°C	95°C	10	2040	760	940	2270
AR 1500	A460H67 VB120			1643	-10°C	50°C	6	2470	850	1040	2680
AR 2000	A460H70 VB120			1952	-10°C	50°C	6	2450	950	1140	2705
AR 3000	A460H74 VB120			2986	-10°C	50°C	6	2840	1100	1290	3120
AR 5000	A460H80 VB120			5129	-10°C	50°C	6	3030	1450	1640	3450

Pm: pivot measurement

For models of 3.000 L and above, special packaging may be required due to their height.



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Connection heights (mm)

MODEL	DN1	DN2	DN3	DN4	DN7	DN7	DN11	DN15	DN15	DN15	DN19
AR 100	235	715	235	715	-	315	-	235	715	475	-
AR 200	255	915	255	915	-	505	-	255	915	585	-
AR 300	260	1360	260	1360	-	585	-	260	1360	810	-
AR 500	320	1390	320	1390	-	730	-	320	1390	855	-
AR 800	340	1410	340	1410	1250	500	-	340	1410	875	-
AR 1000	340	1660	340	1660	1450	550	-	340	1660	1000	-
AR 1500	485	2005	485	2005	-	-	80	485	2005	1245	-
AR 2000	475	1995	475	1995	-	-	80	475	1995	1235	-
AR 3000	540	2320	540	2320	-	-	80	540	2320	1430	-
AR 5000	635	2415	635	2415	-	-	80	635	2415	1525	-

Connection sizes

MODEL	DN1	DN2	DN3	DN4	DN7	DN11	DN15	DN19
AR 100	G1.1/2"	G1.1/2"	G1.1/2"	G1.1/2"	G1.1/2"	-	G1/2"	G1.1/4"
AR 200	G1.1/2"	G1.1/2"	G1.1/2"	G1.1/2"	G1.1/2"	-	G1/2"	G1.1/4"
AR 300	G2"	G2"	G2"	G2"	G1.1/2"	-	G1/2"	G1.1/4"
AR 500	G3"	G3"	G3"	G3"	G1.1/2"	-	G1/2"	G1.1/4"
AR 800	G3"	G3"	G3"	G3"	G1.1/2"	-	G1/2"	G1.1/2"
AR 1000	G3"	G3"	G3"	G3"	G1.1/2"	-	G1/2"	G1.1/2"
AR 1500	G3"	G3"	G3"	G3"	-	G1"	G1/2"	G3"
AR 2000	G3"	G3"	G3"	G3"	-	G1"	G1/2"	G3"
AR 3000	G4"	G4"	G4"	G4"	-	G1"	G1/2"	G3"
AR 5000	G4"	G4"	G4"	G4"	-	G1"	G1/2"	G3"

Insulation characteristics

Model	Insulation type	Insulation thickness (mm)	Finish
AR 100	Rigid expanded polyurethane with 95% closed cells, CFC and HCFC free, fire resistance class B2 acc. to DIN 4102-1	55	Grey polystyrene RAL 9006
AR 200	Rigid expanded polyurethane with 95% closed cells, CFC and HCFC free, fire resistance class B2 acc. to DIN 4102-1	55	Grey polystyrene RAL 9006
AR 300	Rigid expanded polyurethane with 95% closed cells, CFC and HCFC free, fire resistance class B2 acc. to DIN 4102-1	75	Grey polystyrene RAL 9006
AR 500	Rigid expanded polyurethane with 95% closed cells, CFC and HCFC free, fire resistance class B2 acc. to DIN 4102-1	55	Grey polystyrene RAL 9006
AR 800	Rigid expanded polyurethane with 95% closed cells, CFC and HCFC free, fire resistance class B2 acc. to DIN 4102-1	75	Grey PVC RAL 9006
AR 1000	Rigid expanded polyurethane with 95% closed cells, CFC and HCFC free, fire resistance class B2 acc. to DIN 4102-1	75	Grey PVC RAL 9006
AR 1500	Closed cells polyethylene	20	blue RAL 5015 PVC
AR 2000	Closed cells polyethylene	20	blue RAL 5015 PVC
AR 3000	Closed cells polyethylene	20	blue RAL 5015 PVC
AR 5000	Closed cells polyethylene	20	blue RAL 5015 PVC

Reference standards

CYLINDER: | Directive 2014/68/EU – ART. 4.3, with exemption from CE marking.

Standard EN 12897:2020 (models from 100 to 1000 liters only).

Designed and built in accordance with the requirements of 2009/125/EC and Regulation 814/2013 (EU) (only models from 100 to 1000 litres).

Labeling in accordance with the requirements of 2017/1369/EU and Delegated Regulation 812/2013 (EU) (models from 100 to 1000 liters only).

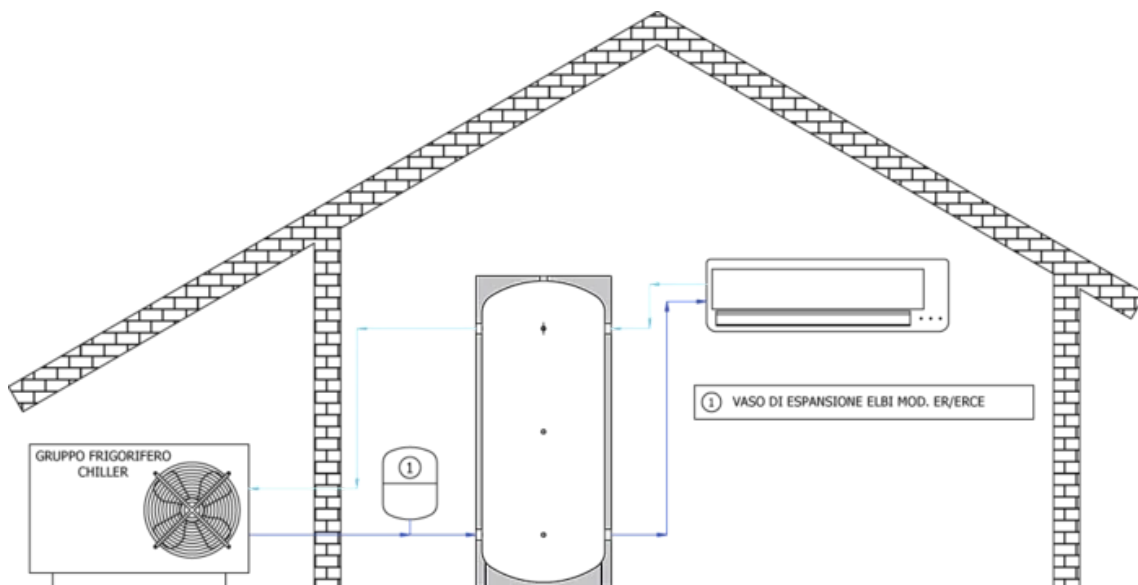
Warranty: 5 years

Immersion heaters

Codice	Potenza Kw	Alimentazione V	Attacco	Lunghezza mm	Applicabilità					
					100	200	300	500	800	1000
IMMERSION HEATERS WITHOUT THERMOSTAT										
8601000	1	230	G1.1/4"	295	201	✓	✓	✓	✓	✓
8601650	1.65	230	G1.1/4"	450	✗	248	358	✓	✓	✓
8602000	2	230	G1.1/4"	515	✗	✗	✗	✓	✓	✓
8602600	2.6	230	G1.1/4"	675	✗	✗	✗	✗	✓	✓
8602601	2.6	230	G1.1/4"	360	77	157	227	✓	✓	✓
8603300	3.3	230	G1.1/4"	825	✗	✗	✗	✗	✗	✗
8603301	3.3	230	G1.1/4"	435	✗	124	179	314	✓	✓
8604001	4	230	G1.1/4"	510	✗	✗	✗	259	✓	✓
8705000	5	400	G1.1/2"	445	✗	82	118	207	313	✓
8706000	6	400	G1.1/2"	510	✗	✗	✗	173	261	303
8708000	8	400	G1.1/2"	670	✗	✗	✗	✗	196	228
8710000	10	400	G1.1/2"	820	✗	✗	✗	✗	✗	✗
8712000	12	400	G1.1/2"	970	✗	✗	✗	✗	✗	✗
8717000	17	400	G2"	1200	✗	✗	✗	✗	✗	✗
IMMERSION HEATERS WITH THERMOSTAT										
8T01500	1.5	230	G1.1/2"	320	134	273	✓	✓	✓	✓
8T02000	2	230	G1.1/2"	320	101	204	296	✓	✓	✓
8T02200	2.2	230	G1.1/2"	320	92	186	269	✓	✓	✓
8T02500	2.5	230	G1.1/2"	320	81	164	237	✓	✓	✓
8T03000	3	230	G1.1/2"	320	67	136	197	345	✓	✓
8T04000	4	400	G1.1/2"	400	✗	102	148	259	✓	✓
8T05000	5	400	G1.1/2"	500	✗	✗	✗	207	313	✓
8T06000	6	400	G1.1/2"	600	✗	✗	✗	173	261	303
8T09000	9	400	G1.1/2"	700	✗	✗	✗	✗	174	202
8T12000	12	400	G1.1/2"	850	✗	✗	✗	✗	✗	✗

Example of installation

AR



Illustrative diagram; always refer to a qualified technician for the realization of the systems.

Ver. date 10/04/2025

DECLARATION OF CONFORMITY

Elbi S.p.A. – via Buccia 9, 35010 Limena (PD) – ITALY

Declares that the following tanks:

AR 100	item code	A460L38 PGP55
AR 200	item code	A460L47 PGP55
AR 300	item code	A460L51 PGP75
AR 500	item code	A460L55 PGP55
AR 800	item code	A460L60 PGP75
AR 1000	item code	A460L62 PGP75
AR 1500	item code	A460H67 VB120
AR 2000	item code	A460H70 VB120
AR 3000	item code	A460H74 VB120
AR 5000	item code	A460H80 VB120

- comply with the provisions of Directive 2009/125/EC and EU Regulations 812/201 and 814/2013, and and are marked accordingly;
- are in compliance with the provisions of Directive 2014/68/EU (Art. 4.3).

Standards applied for verification of compliance: EN 12897 latest applicable edition

Amministratore Delegato
ELBI S.p.A.

PRODUCT FICHE – UE 812/2013 Annex IV.2.1

(a) Manufacturer: Elbi S.p.A.

(b) Model	(c) Energy efficiency class	(d) Thermal dispersion	(e) Useful volume
AR 100	A	35 W	99 L
AR 200	B	57 W	195 L
AR 300	B	67 W	282 L
AR 500	C	91 W	494 L

PRODUCT FICHE – UE 814/2013 Annex V.7

(a) Manufacturer: Elbi S.p.A.

(b) Model	(c) Energy efficiency class	(d) Thermal dispersion	(e) Useful volume
AR 100	A	35 W	99 L
AR 200	B	57 W	195 L
AR 300	B	67 W	282 L
AR 500	C	91 W	494 L
AR 800	C	131 W	747 L
AR 1000	C	136 W	868 L
AR 1500			1643 L
AR 2000			1952 L