



# EMERSON A-Series Alco Controls Instruction Manual

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**EMERSON A-Series Alco Controls**



## Product Information

The Suction Accumulators A-Series is a product designed to hold liquid refrigerant and protect the compressor against temporary entering liquid fluid from suction line during reversing flow in heat pumps applications, after defrost termination in refrigeration applications or temporary flooding back from system. The product is compatible with Fluid Group II R134a, R404A, R407C, R410A, R448A, R449A, R450A, R452A, R507, R513A, R1234ze\* and Fluid Group I R32, R444B, R447A, R452B, R454B, R454A, R454C, R455A, R1234yf. The product is manufactured in Mexico and comes with a date code on the label.

## Product Usage Instructions

- **Mounting Location:** Install the suction accumulator in such a way that it is protected against vibration generated by the compressor. Use a vibration adsorber between suction accumulator and compressor to prevent vibration.
- **Brazing:** Follow Fig.1 for brazing instructions.
- **Pressure Test:** After installation, conduct a pressure test according to EN 378 for systems which must comply with European pressure equipment directive 2014/68/EU or to maximum working pressure of the system for other applications.
- **Tightness Test:** Conduct a tightness test according to EN 378-2 with appropriate equipment and method to identify leakages from joints and products. The allowable leakage rate must be according to the system manufacturer's specification.
- **Operation:** Refer to the product manual for operating instructions.
- **Service / Maintenance:** Refer to the product manual for service and maintenance instructions.

## General information

The function of suction accumulator is holding liquid refrigerant and the protection of compressor against temporary entering liquid fluid from suction line during reversing flow in heat pumps applications, after defrost termination in refrigeration applications or temporary flooding back from system.

## Safety instructions

- Read operating instructions thoroughly. Failure to comply can result in device failure, system damage or personal injury.

- This product is intended for use by qualified personnel having the appropriate knowledge and skills like trained according to EN 13313 or a specific training for flammable refrigerants.
- Flammable refrigerants require special handling and care due to its flammability. Sufficient ventilation is required during service of the system. Contact with rapidly expanding gases can cause frostbite and eye damage. Proper protective equipment (gloves, eye protection, etc.) has to be used.
- Ensure that the system is correctly labeled with applied refrigerant type and a warning for explosion risk.
- In a severely contaminated system, avoid breathing acid vapors and avoid contact with skin from contaminated refrigerant / lubricants. Failure to do so could result in injury.
- Before opening any system make sure pressure in system is brought to and remains at atmospheric pressure.
- Do not release any refrigerant into the atmosphere!
- Do not exceed the specified maximum ratings for pressure and temperature.
- Observe and avoid mechanical damage of component housing.
- Do not use any other fluid media without prior approval of EMERSON. Use of fluids not listed could result in:
  - Change of hazard category of product and consequently change of conformity assessment requirement for product in accordance with European Pressure Equipment Directive 2014/68/EU.
- Ensure that design, installation and operation comply with European and national standards/regulations.
- The suction accumulator must be used only for the purpose it is designed for.
- For flammable refrigerants only use accessories approved for it!

## Mounting location

- The suction accumulator should be installed as close as possible to the compressor(s) in the main suction line but before any installed vibration adsorber.
- On heat pumps systems with reversing valve, suction accumulator should be installed between main suction line of reversing valve and compressor.

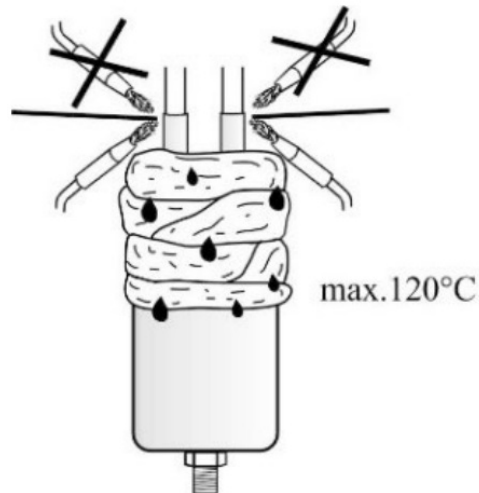
## Installation

- Be sure that the inlet connection is connected to the main suction line.
- The suction accumulator shell must be mounted securely in a vertical position.
- **WARNING:** Protect the suction accumulator against vibration generated by compressor. Install the vibration adsorber between suction accumulator and compressor.

## Brazing (Fig.1 )

- Perform the brazing joint as per EN 14324.
- Before and after brazing clean tubing and brazing joints.
- Minimize vibrations in the piping lines by appropriate solutions.
- To avoid oxidization, it is advised to purge the system with an inert gas such as nitrogen while brazing.
- Do not exceed the max. surface temperature of 120 °C!

**Fig.1:**



## **Pressure Test**

After completion of installation, a pressure test must be carried out as follows:

- according to EN 378 for systems which must comply with European pressure equipment directive 2014/68/EU.
- to maximum working pressure of system for other applications.

## **Tightness Test**

Conduct a tightness test according to EN 378-2 with appropriate equipment and method to identify leakages from joints and products. The allowable leakage rate must be according system manufacturer's specification.

### **WARNING:**

- Failure to pressure test or tightness test as described could result in loss of refrigerant, damage to property and/or personal injury.
- The tests must be conducted by skilled personnel with due respect regarding the danger related to pressure.

## **Operation**

- After tightness test, start system. In general, the liquid level in the suction accumulator can be observed by removing external insulation and watching the condensation or frost level on external surface of suction accumulator.
- During operation the external surface of the suction accumulator will sweat. Insulate the suction accumulator.

## **Service / Maintenance**

When disposing or removing the component or part from refrigeration system, ensure that no refrigerant remains trapped inside of the part.

- According to EN 378-4 during each periodic maintenance, tightness tests shall be carried out at the relevant part of the refrigerating system. This shall apply where appropriate following any repair.
- A fused plug has been incorporated in suction accumulators range A..-4.. and A..-5.. and they will open if





temperature of fluid exceeds 221 °C in case of external fire.

- Do not attempt to repair the fused plug in case of detection of leakage. The suction accumulator must be replaced.
- The external surface of shells is coated by epoxy powder painting for optimum protection against corrosion. The external surface of shell shall be checked as per EN 378 during routine/periodic inspection/service.

## Technical Data

Max. allowable pressure PS at TS -10...+65 °C at TS -45...-10 °C	20.7 bar 15.5 bar
Temperature range TS	-45...+65 °C
Date code on label	Mxxxx (Made in Mexico)
Medium compatibility <b>Fluid Group II</b>	R134a, R404A, R407C, R410A, R448A, R449A, R450A, R452A, R507, R513A, R1234ze* <b>(A1)</b>
<b>Fluid Group I</b>	R32, R444B, R447A, R452B, R454B, R454A, R454C, R455A, R1234yf <b>(A2L)</b>
NOTE: Fluid groups acc. to PED 2014/68/EU. *) A2L acc. to ASHARE	
Dimensions / Connections	See Fig. 2

## Classification according PED and Markings

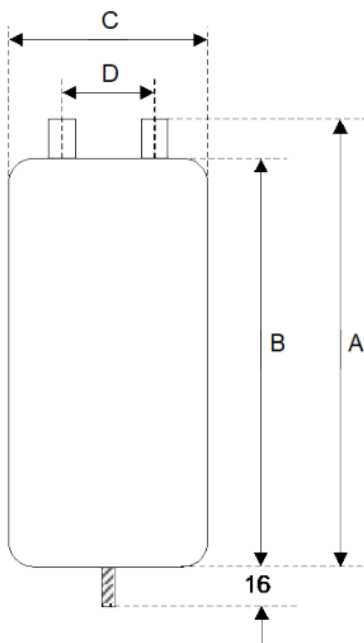
Type	Vol. (litre)	Refr.	Fluid Group (PED)	Conformity Assessment Category	CE	Markings		
						UK CA	C  US LISTED	EAC
A08-304	0.73		II	SEP	Not required	Not required	√	√
A10-305	0.93							
A06-405	0.93							
A12-305	1.16							
A12-306	1.16							
A14-305	1.4							
A14-306	1.4							
A10-405	1.75							
A10-406	1.75		II	Cat. I / Mod.A	√ (PED)	√	√	√
A09-506	2.33							
A09-507	2.33							
A12-506	3.29							
A12-507	3.29							
A13-507	3.8							
A13-509	3.8							
A17-509	4.87							
A17-511	4.87							
A11-607	4.3							
A13-607	4.98							
A13-609	4.98							
A14-611	5.48							
A17-613	6.85							
A17-642	6.85							
A20-613	8.21							
A25-613	10.23	 + R1234ze	II	Cat.II / Mod. D1	CE0036	√*	√	√

Type	Vol. (litre)	Refr.	Fluid Group (PED)	Conformity Assessment Category	Markings			
					CE	UK CA	UL LISTED	EAC
A08-304-L	0.73	A1 A2L	I + II	SEP	Not required	Not required	-	✓
A10-305-L	0.93							
A06-405-L	0.93							
A12-305-L	1.16	A1 A2L	I + II	Cat. I / Mod.A	✓ (PED)	✓	-	✓
A12-306-L	1.16							
A14-305-L	1.4							
A14-306-L	1.4							
A10-405-L	1.75							
A10-406-L	1.75							
A09-506-L	2.33	A1 A2L	I + II	Cat.II / Mod. D1	CE0036	✓*	-	✓
A09-507-L	2.33							
A12-506-L	3.29							
A12-507-L	3.29							
A13-507-L	3.8							
A13-509-L	3.8							
A17-509-L	4.87							
A17-511-L	4.87							
A11-607-L	4.3							
A13-607-L	4.98							
A13-609-L	4.98							
A14-611-L	5.48							
A17-613-L	6.85							
A17-642-L	6.85							
A20-613-L	8.21							

NOTE: \*) pending

## DIMENSION

Fig..2:



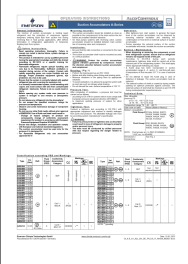
Type	Part No.	Type	Part No	Connections		Dimensions (mm)			
				(Inch)	(mm)	A	B	C	D
A08-304	001973	A08-304-L	882453	1/2"		210	191	79	41
A10-305	001977	A10-305-L	882457	5/8"	16	266	238	79	41
A06-405	001989	A06-405-L	882462	5/8"	16	320	292	79	41
A12-305	001978	A12-305-L	882458	5/8"	16	325	292	79	41
A12-306	001979	A12-306-L	882459	3/4"		378	350	79	41
A14-305	001980	A14-305-L	882460	5/8"	16	383	350	79	41
A14-306	001987	A14-306-L	882461	3/4"		161	143	105	64
A10-405	001990	A10-405-L	882463	5/8"	16	168	143	105	64
A10-406	001994	A10-406-L	882464	3/4"		279	254	105	64
A09-506	881995	A09-506-L	881994	3/4"		285	254	105	64
A09-507	882455	A09-507-L	882456	7/8"	22	246	216	132	70
A12-506	881996	A12-506-L	881997	3/4"		252	216	132	70
A12-507	881998	A12-507-L	881999	7/8"	22	327	297	132	70
A13-507	882007	A13-507-L	882000	7/8"	22	334	297	132	70
A13-509	882011	A13-509-L	882001	1-1/8"		377	340	132	70
A17-509	882012	A17-509-L	882002	1-1/8"		380	340	132	70
A17-511	882013	A17-511-L	882003	1-3/8"	35	470	430	132	70
A11-607	882014	A11-607-L	882004	7/8"	22	471	430	132	70
A13-607	882015	A13-607-L	882005	7/8"	22	317	279	160	75
A13-609	882019	A13-609-L	882006	1-1/8"		358	320	160	75
A14-611	882020	A14-611-L	882008	1-3/8"	35	363	320	160	75
A17-613	882022	A17-613-L	882009	1-5/8"		396	350	160	75
A17-642	889023	A17-642-L	882010		42	480	432	160	75
A20-613	882021	A20-613-L	882016	1-5/8"		563	514	160	75
A25-613	882023	A25-613-L	882017	1-5/8"		683	635	160	75

## ABOUT COMPANY

- Emerson Climate Technologies GmbH
- Pascalstrasse 65

- 52076 Aachen
- Germany
- [www.climate.emerson.com/en-gb](http://www.climate.emerson.com/en-gb)

## Documents / Resources

	<p><b><a href="#">EMERSON A-Series Alco Controls</a></b> [pdf] Instruction Manual</p> <p>A08-304, A10-305, A06-405, A12-305, A12-306, A14-305, A14-306, A10-405, A10-406, A09-506, A09-507, A12-506, A12-507, A13-507, A13-509, A17-509, A17-511, A11-607, A13-607, A13-609, A14-611, A17-613, A17-642, A20-613, A-Series Alco Controls, A-Series Controls, Alco Controls, Controls</p>
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## References

-  [Copeland is Engineered for Sustainability | Copeland GB](#)