

更新公告

ACS800LC水冷工业单元和变频器的冷却液更换为 Antifrogen® L。

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生效期: 2021-12-01

内容:

本通知涉及工业ACS800水冷多传动单元硬件手册、ACS800水冷单传动柜体手册、ACS800水冷单元用户手册及相应译本。

适用范围

此次更改涉及在中国制造的ACS800水冷多传动单元（ACS800-107LC，-207LC，-307LC，-507LC，-607LC，-1107LC，-1207LC）、ACS800-1007LC水冷单元、ACS800-07LC变频器、ACS800-17LC变频器和ACS800-37LC变频器。

新的传动柜体和变频器均使用Antifrogen® L进行了测试。Antifrogen® L是基于丙二醇的即用型冷却液混合物，含有防腐剂。文档《在ACS800LC变频器中使用Antifrogen® L》(3ABD00054836)介绍了如何正确选择Antifrogen® L和调节主流量控制阀。

为防止管路腐蚀，在使用Antifrogen® L进行测试后的传动单元和变频器必须使用Antifrogen® L来运行。如果使用旧的丙二醇和防腐剂Cortec VpCI-649，必须先冲洗系统，因为出厂测试之后系统中会残留Antifrogen® L。必须遵守文档《在ACS800LC变频器中使用Antifrogen® L》(3ABD00054836)中所述冲洗程序。在使用Antifrogen® L进行测试后的传动单元或变频器如果连接至原有的ACS800工业水冷单元或变频器，则两个系统需使用相同的冷却液。不得将丙二醇和防腐剂Cortec VpCI-649冷却液与Antifrogen® L混用。

新生产的水冷传动柜体和变频器都使用Antifrogen® L进行测试并贴有如下所示的警示标签(3AXD50000431427)。标签粘贴在LCU柜上，如果未配LCU柜体，则粘贴在主进水管上。



本更新通知和文档《在ACS800LC变频器中使用Antifrogen® L》(3ABD00054836)存放在机柜门内的文档袋中。

文档变更

技术参数、内部冷却回路数据、水、防腐剂、丙二醇、液体混合物质量、温度限值、压力限值及防冻和防腐章节替换如下：

技术参数

冷却液规格

冷却液类型

25%或50%的Antifrogen®L（由科莱恩国际有限公司提供，www.clariant.com）水混合物，可从科莱恩分销商和ABB服务代表处购买。

25%的Antifrogen®L混合物可用于低至-16 °C (3.2 °F) 的储存温度。50%的Antifrogen®L混合物可用于低至-40 °C (-40 °F) 的储存温度。

请注意，无论冷却液的凝固点如何，都不允许在0 °C (32 °F) 以下运行。



警告！

冷却液使用不当所造成的损坏不在保修范围内。

温度限值

环境温度：见变频器/单元的技术参数。

防冻保护：冷却液的冰点由混合物中的导热液态的浓度决定。

导热液态的浓度越高，冷却液的粘度就越高。这会导致系统的压力损失更高。

传动系统模块的额定电流值适用于25/75%（体积比）的Antifrogen®L/水溶液。对于其他配比的降容值，请咨询您当地的ABB代表。

必须根据下表控制冷却液温度。

最低进液口温度：不允许发生冷凝。避免冷凝（在100 kPa大气压力下）的最低冷却液温度为相对湿度 (ϕ) 与环境温度 (T_{air}) 的函数，如下表所示。

$T_{air}(^{\circ}\text{C})$	Min. $T_{coolant}(^{\circ}\text{C})$				
	$\phi = 95\%$	$\phi = 80\%$	$\phi = 65\%$	$\phi = 50\%$	$\phi = 40\%$
5	4.3	1.9	-0.9	-4.5	-7.4
10	9.2	6.7	3.7	-0.1	-3.0
15	14.2	11.5	8.4	4.6	1.5
20	19.2	16.5	13.2	9.4	6.0
25	24.1	21.4	17.9	13.8	10.5
30	29.1	26.2	22.7	18.4	15.0
35	34.1	31.1	27.4	23.0	19.4
40	39.0	35.9	32.2	27.6	23.8
45	44.0	40.8	36.8	32.1	28.2
50	49.0	45.6	41.6	36.7	32.8
55	53.9	50.4	46.3	42.2	37.1

= 虽然没有作为标准，但冷却液温度必须为5 °C或更高。如需在冷却液温度低于5 °C时运行，请咨询ABB代表。

示例：空气温度为45 °C且相对湿度为65%时，冷却液温度不得低于+36.8 °C。

ACS800水冷变频器的最高进液口温度

配备可选冷却单元的变频器 (ACS800-1007LC):

- 不导致传动输出能力降容的温度为38 °C
- 38 °C...45 °C每升高1 °C降容1%

未配备可选液体冷却单元的变频器 (ACS800-1007LC):

- 不导致传动输出能力降容的温度为42 °C
- 42 °C...48 °C每升高1 °C降容1%

最大温升：13 °C，取决于质量流量。

压力限值

基础压力: 100...150 kPa (推荐): 200 kPa (最大)。“基础压力”表示冷却回路充满冷却液时, 系统压力与大气压力的压差。

膨胀箱中的空气反压: 40 kPa

设计压力 (Ps): 600 kPa

标称压差 (主进/出管线之间): 使用25/75% (体积) 冷却液时, 为120 kPa; 使用50/50%冷却液时, 为150 kPa。

最大压差 (主进水/出水管线之间): 200 kPa

Update notice

ACS800LC liquid-cooled industrial units and drives coolant change to Antifrogen® L.

Code: 3ABD00054860 Rev A

Valid: 2021-12-01

Contents:

This notice concerns industrial ACS800 Liquid-cooled multidrive Units Hardware manuals, ACS800 Liquid-cooled Single Drive cabinet manuals, ACS800 Liquid Cooling Unit User's Manual and their respective translations.

Scope

This change concerns ACS800 Liquid-cooled multidrive Units (ACS800-107LC, -207LC, -307LC, -507LC, -607LC, -1107LC, -1207LC), ACS800-1007LC Liquid Cooling Unit, ACS800-07LC Drives, ACS800-17LC Drives and ACS800-37LC Drives manufactured in **China**.

New units and drives are tested with Antifrogen® L. Antifrogen® L is a ready-made propylene glycol based coolant mixture with corrosion inhibitors included. Proper selection of Antifrogen® L and Adjustment of the Main Choke Valve is described in the document Usage of Antifrogen® L in ACS800LC Drives (3ABD00054836).

New units and drives which are tested with Antifrogen® L must be operated with Antifrogen® L to prevent corrosion in the system. If usage of the old propylene glycol and corrosion inhibitor Cortec VpCl-649 in new Antifrogen® L tested units and drives is wanted system must be flushed before as Antifrogen® L remains in the system after testing. Flushing procedure described in the document Usage of Antifrogen® L in ACS800LC Drives (3ABD00054836) must be followed. If new units or drives tested with Antifrogen® L are connected to old ACS800 industrial liquid-cooled units or drives, both systems needs to use same the coolant. Mixing propylene glycol and corrosion inhibitor Cortec VpCl-649 coolant with Antifrogen® L is not allowed.

New units and drives are tested with Antifrogen® L are labelled with information label (3AXD50000431427) below. The label is installed to LCU-cabinet or incoming main pipe of the unit if delivered without LCU-cabinet.



This update notice and Usage of Antifrogen® L in ACS800LC Drives (3ABD00054836) document are delivered with drive in documentation pocket inside the cabinet door.

Changes to documentation

Replaced Technical data, internal cooling circuit data, Water, Inhibitor, Glycol, Liquid mixture quality, Temperature limits, Pressure limits and Freeze protection and corrosion inhibition chapters to following:

Technical data

Coolant specification

Coolant type

Antifrogen®L (by Clariant International Ltd., www.clariant.com) 25% or 50% water mixture, available from Clariant distributors and ABB Service representatives.

Antifrogen®L 25% mixture is usable in storage temperatures down to -16 °C (3.2 °F). Antifrogen®L 50% mixture is usable in storage temperatures down to -40 °C (-40 °F).

Note that operation below 0 °C (32 °F) is not allowed regardless of the freezing point of the coolant.



WARNING!

The warranty does not cover damage occurring from use of improper coolant.

Temperature limits

Ambient temperature: See the technical data of the drive/unit.

Freeze protection: The freezing point of the coolant is determined by the concentration of heat transfer fluid in the mixture.


The higher the concentration of heat transfer fluid, the higher the viscosity of the coolant. This results in a higher pressure loss in the system.

The nominal current ratings of drive system modules apply to Antifrogen®L / water solution of 25/75 (volume). For derating with other ratios, contact your local ABB representative.

The temperature of the coolant must be controlled according to the tables below.

Minimum coolant inlet temperature: Condensation is not allowed. The minimum coolant temperature to avoid concentration (at an atmospheric pressure of 100 kPa) is shown below as a function of the relative humidity (ϕ) and the ambient temperature (T_{air}).

$T_{\text{air}}(^{\circ}\text{C})$	Min. $T_{\text{coolant}}(^{\circ}\text{C})$				
	$\phi = 95\%$	$\phi = 80\%$	$\phi = 65\%$	$\phi = 50\%$	$\phi = 40\%$
5	4.3	1.9	-0.9	-4.5	-7.4
10	9.2	6.7	3.7	-0.1	-3.0
15	14.2	11.5	8.4	4.6	1.5
20	19.2	16.5	13.2	9.4	6.0
25	24.1	21.4	17.9	13.8	10.5
30	29.1	26.2	22.7	18.4	15.0
35	34.1	31.1	27.4	23.0	19.4
40	39.0	35.9	32.2	27.6	23.8
45	44.0	40.8	36.8	32.1	28.2
50	49.0	45.6	41.6	36.7	32.8
55	53.9	50.4	46.3	42.2	37.1

 = Not allowed as standard but the coolant temperature must be 5 °C or above. Consult an ABB representative if operation below coolant temperature 5 °C is required.

Example: At an air temperature of 45 °C and relative humidity of 65% the coolant temperature may not be below +36.8 °C.

Maximum coolant inlet temperature for ACS800 liquid cooled drive

Drive with the optional cooling unit (ACS800-1007LC):

- 38 °C when the drive output capacity is not derated
- 38 °C...45 °C when the drive output capacity is derated by 1% per 1 °C temperature increase.

Drive without the optional liquid cooling unit (ACS800-1007LC):

- 42 °C when the drive output capacity is not derated
- 42 °C...48 °C when the drive output capacity is not derated by 1% per 1 °C temperature increase.

Maximum temperature rise: 13 °C, depends on the mass flow.

Pressure limits

Base pressure: 100...150 kPa (recommended): 200 kPa (maximum). “Base pressure” denotes the pressure of the system compared with the atmospheric pressure when the cooling circuit is filled with coolant.

Air counterpressure in the expansion tank: 40 kPa

Design pressure (Ps): 600 kPa

Nominal pressure difference (between main in/out lines): 120 kPa with 25(75% (volume) coolant solution, 150 kPa with 50/50% coolant solution.

Maximum pressure difference (between main in/out lines): 200 kPa

