

DfYbcgb]\_j'fcd`ch'Ë<`UX]b]\_j'h'c ]bž\`U'Yb]`g\`UX]j ca `Ë'Dcghcd\_]`dfYg\_i ýUb`U  
nUi [ cHj`Ub`Y'h\ b] b\`\_UfU`h'f]gh`!`8cdc`b]c`5%

Heat exchangers - Refrigerant cooled liquid coolers - Test pocedure for establishing the  
performance

Wärmeaustauscher - Kältemittelgekühlte Flüssigkeitskühler - Prüfverfahren zur  
Leistungsfeststellung

Echangeurs thermiques - Refroidisseurs de liquides - Procédures d'essai pour la  
détermination de la performance

<https://standards.iteh.ai/catalog/standards/sist/9ff39830-6587-47e0-a46d-300df359c57c/sist-en-1118-1999-a1-2004>

**Ta slovenski standard je istoveten z: EN 1118:1998/A1:2002**

**ICS:**

27.060.30      Grelniki vode in prenosniki      Boilers and heat exchangers  
toplote

27.200      Hladilna tehnologija      Refrigerating technology

**SIST EN 1118:1999/A1:2004**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 1118:1999/A1:2004](https://standards.iteh.ai/catalog/standards/sist/9ff39830-6587-47e0-a46d-300df359c57c/sist-en-1118-1999-a1-2004)

<https://standards.iteh.ai/catalog/standards/sist/9ff39830-6587-47e0-a46d-300df359c57c/sist-en-1118-1999-a1-2004>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1118:1998/A1**

October 2002

ICS 27.060.30; 27.200

English version

**Heat exchangers - Refrigerant cooled liquid coolers - Test  
pocedure for establishing the performance**

Echangeurs thermiques - Refroidisseurs de liquides -  
Procédures d'essai pour la détermination de la  
performance

Wärmeaustauscher - Kältemittelgekühlte Flüssigkeitskühler  
- Prüfverfahren zur Leistungsfeststellung

This amendment A1 modifies the European Standard EN 1118:1998; it was approved by CEN on 14 September 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

SIST EN 1118:1999/A1:2004

<https://standards.iteh.ai/catalog/standards/sist/9ff39830-6587-47e0-a46d-300df359c57c/sist-en-1118-1999-a1-2004>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

## Contents

	page
Foreword.....	3
3 Definitions.....	3
7 Measurements.....	4
8 Testing methods and equipment.....	4

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 1118:1999/A1:2004](https://standards.iteh.ai/catalog/standards/sist/9ff39830-6587-47e0-a46d-300df359c57c/sist-en-1118-1999-a1-2004)  
<https://standards.iteh.ai/catalog/standards/sist/9ff39830-6587-47e0-a46d-300df359c57c/sist-en-1118-1999-a1-2004>

## Foreword

This document (EN 1118:1998/A1:2002) has been prepared by Technical Committee CEN/TC 110 "Heat exchangers", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

This amendment is introduced to accommodate newly available refrigerants such as R404A, R407C and R410A.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

### 3 Definitions

Modify 3.7.4 to read as follows:

**3.7.4 evaporating temperature:** Dew point temperature of the refrigerant, corresponding to the evaporating pressure.

Add definition after 3.7.6 as follows:

**3.7.7 bubble point temperature:** Temperature corresponding to the absolute pressure of the refrigerant at the inlet connection of the expansion devices.

Modify 3.8.3 to read as follows:

**3.8.3 subcooling:** Difference between the bubble point temperature corresponding to the absolute pressure of the refrigerant at the inlet connection to the expansion device and the subcooled refrigerant temperature.

Add definition after 3.8.4 as follows:

**3.8.5 high glide:** Refrigerant where the difference between the condensing and bubble point temperatures at a condensing temperature of 40 °C is greater than 3K.

Modify 3.11.2 to read as follows [i.e. 'evaporating pressure' replaces 'evaporating temperature']:

**3.11.2 refrigerant outlet specific enthalpy:** Specific enthalpy of the refrigerant at the outlet connection of the liquid cooler system. It is defined as the specific enthalpy of the refrigerant corresponding to the evaporating pressure and the vapour outlet temperature.

This also applies to liquid overfeed by pump circulation as there the refrigerant outlet enthalpy cannot be defined by temperature and pressure measurement and this definition is only applicable to capacity calculations (see annex A).

Add definition after 3.14 as follows:

**3.15 oil content:** Proportion of oil by mass in the refrigerant related to the pure refrigerant.

## EN 1118:1998/A1:2002 (E)

## 7 Measurements

Table 1 – Uncertainty of measurements

Add to table:

Measurements	Uncertainty of measurements
Refrigerant mixture	$\pm 1$ % by mass for each refrigerant component

Add the following sub-clause after 7.2.5 as follows:

### 7.2.6 Non-azeotropic refrigerant

For high glide refrigerants the refrigerant mixture shall be measured unless it can be guaranteed that the mass fraction varies by less than 2 % from the refrigerant manufacturer's data.

## 8 Testing methods and equipment

### 8.1.1 General

In the first sentence replace 'fulfill' with 'fulfil' and add note at the end of the sub-clause as follows:

NOTE The test methods are not suitable for high glide refrigerants used with liquid feed by gravity or liquid overfeed by pump circulation.

### 8.2.1 General requirements

Add the following after existing text:

Care shall be taken with non-azeotropic refrigerants, that there are no liquid refrigerant accumulations in the refrigerant cycle. While testing non-azeotropic refrigerants, the concentration of the individual refrigerants within the mixture circulating through the unit cooler shall remain identical to the concentration with which it was originally filled.

NOTE Non-azeotropic refrigerants are mixtures of more than one refrigerant with different individual boiling temperatures. If the mixture is separated at a two phase state e.g., in a vessel, one of the two phases can accumulate effecting the concentration of each refrigerant within the rest of the system.

Add the following subclause after 8.2.4:

### 8.2.5 Liquid Receiver

For high glide refrigerants the internal volume of the liquid receiver shall be less than 4 % of the total system volume.