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VEREIN DEUTSCHER INGENIEURE

# Meteorologische Grundlagen für die technische Gebäudeausrüstung

*t*,*x*-Korrelationen der Jahre 1991 bis 2005 für 15 Klimazonen in Deutschland

# Meteorological data for the building services

*t*,*x* correlations from 1991 to 2005 for 15 climatic zones in Germany

VDI 4710

Blatt 3 / Part 3

**Ausg. deutsch/englisch**
**Issue German/English**

*Die deutsche Version dieser Richtlinie ist verbindlich.*

*The German version of this guideline shall be taken as authoritative. No guarantee can be given with respect to the English translation.*

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VDI-Gesellschaft Bauen und Gebäudetechnik (GBG)
Fachbereich Technische Gebäudeausrüstung

**VDI-Handbuch Raumlufttechnik**
**VDI-Handbuch Ressourcenmanagement in der Umwelttechnik**
**VDI-Handbuch Wärme-/Heiztechnik**

 

## Vorbemerkung

Der Inhalt dieser Richtlinie ist entstanden unter Beachtung der Vorgaben und Empfehlungen der Richtlinie VDI 1000.



Allen, die ehrenamtlich an der Erarbeitung dieser VDI-Richtlinie mitgewirkt haben, sei gedankt.

Eine Liste der aktuell verfügbaren Blätter dieser Richtlinienreihe ist im Internet abrufbar unter www.vdi.de/4710.

## Einleitung

Seit 1979 werden in der deutschen Normung die Basisdaten Außenlufttemperatur ($t$) und Wasserdampfgehalt ($x$) (meteorologisch: Mischungsverhältnis) in Form von $t,x$-Korrelationen zusammengestellt, vor allem in DIN 4710. Dabei waren zunächst die Daten von 1951 bis 1970 die Grundlage für Westdeutschland.

Als die Überarbeitung für Gesamtdeutschland anstand, publizierte man 2003 mit dem Deutschen Wetterdienst (DWD) die Daten für 15 Stationen von 1961 bis 1990, da der 30-Jahres-Zyklus alle wesentlichen Schwankungen der im Begriff „Klima“ zusammengefassten Faktoren (z.B. Temperatur, Feuchte, Niederschlag, Wind) erfasst.

In Anbetracht der Problematik der Wahl der Referenzzeiträume hat die World Meteorological Organization (WMO) sogenannte Klimanormalperioden festgelegt, die jeweils 30 Jahre umfassen. Auf Basis umfangreicher Datenanalysen wurde festgestellt, dass dieser Zeitraum ausreicht, um überall auf der Erde die typische Variabilität der Wetterelemente, mithin also das Klima, zu erfassen. Einen wesentlichen weiteren Aspekt der Definition einer Klimanormalperiode stellt die Vergleichbarkeit der klimatischen Größen untereinander dar. Indem man einen einheitlichen Vergleichsmaßstab benutzt, werden darüber hinaus Angaben zu Entwicklungstrends im Klimageschehen erst eindeutig.

Das Konzept für die Erstellung der Korrelationstabellen von Lufttemperatur ($t$) und dem Wasserdampfgehalt der Luft ($x$), die sogenannten $t,x$-Korrelationen, bestand bisher darin, die entsprechenden stündlichen Messwerte des 30-jähri-

## Preliminary note

The content of this guideline has been developed in strict accordance with the requirements and recommendations of the guideline VDI 1000.



We wish to express our gratitude to all honorary contributors of this guideline.

A catalogue of all available parts of this series of guideline can be accessed on the internet at www.vdi-richtlinien.de/4710.

## Introduction

Since 1979, it has been common practice in German standards, particularly in DIN 4710, to compile the basic data of outdoor-air temperature ($t$) and water vapour content ($x$) (meteorologically: mixing ratio) in the form of $t,x$ correlations. Initially, the data from 1951 to 1970 served as the basis for West Germany.

When the standard was to be revised so as to make it applicable to the whole of Germany, the data gathered at 15 stations from 1961 to 1990 were published in 2003 in cooperation with the German Meteorological Service (DWD), given that the 30-year cycle covers all essential variations of the factors subsumed under the term “climate” (such as temperature, humidity, precipitation, wind).

Considering the difficulty of choosing the reference periods, the World Meteorological Organization (WMO) has specified so-called climate normal periods extending over 30 years in each case. Based on extensive data analyses, this period was found to be long enough for recording the typical variability of the weather elements, i.e. the climate, all over the world. A further essential aspect of the definition of a climate normal period is the comparability of the climatic quantities among one another. Moreover, it is only by using a harmonised standard of comparison that information regarding development trends in climate patterns becomes unambiguous.

The concept for the compilation of the correlation tables of air temperature ($t$) and water vapour content in air ($x$), the so-called $t,x$ correlations, so far consisted in using the respective hourly values measured over the 30 years of the currently com-

gen Zeitraums der aktuell abgeschlossenen Klimanormalperiode, also derzeit des Zeitraums 1961 bis 1990, zu verwenden. Nun ist jedoch seit Ende der 1980er-Jahre die Lufttemperatur angestiegen. Um den offensichtlichen Wandel im Regime der Lufttemperatur in den Planungen der Technischen Gebäudeausrüstung besser berücksichtigen zu können, wurden die *t,x*-Korrelationen für den 15-Jahres-Zeitraum 1991 bis 2005, was der Hälfte der laufenden Klimanormalperiode entspricht, neu berechnet.

Um den sich abzeichnenden Klimawandel bewerten zu können, erarbeitete der DWD für die nun benannten 15 Stationen die zur DIN 4710 identischen Darstellungen für die *t,x*-Korrelation aus diesem 15-Jahres-Zyklus.

Diese Informationen sollen der Öffentlichkeit schnell zugänglich gemacht werden. Der VDI entschied daher, diese Tabellen in die Richtlinienreihe VDI 4710 als Blatt 3 einzubinden. Analog zu DIN 4710 werden hier keine Anwendungskriterien beschrieben. Man stellt der Öffentlichkeit das meteorologische Material wertfrei zur Verfügung.

Hier sei darauf verwiesen, dass VDI 4710 Blatt 1 in den meteorologischen Daten außereuropäischer Stationen ebenfalls *t,x*-Korrelationen als Übersichtstabellen zur Klimaeinschätzung enthält.

Der VDI beabsichtigt, in den Richtlinien wie VDI 2078 und VDI 6018 Quervereise zu den Daten der VDI 4710 Blatt 3 herzustellen. Ferner kann mit einer derartigen Darstellung für bestimmte Anlagentypen (Konstantvolumenstromsysteme) die Luftbehandlung genauer berechnet werden als mit den heute zumeist verwendeten Testreferenzjahr-Verfahren (TRY-Verfahren), da diese nur ein Teilkollektiv der *t,x*-Korrelation für ihre Berechnungen verwenden.

## 1 Anwendungsbereich

Diese VDI-Richtlinie dient der Festlegung von Auslegungspunkten (Sommer und Winter) der Lufttemperatur *t*, dem Wasserdampfgehalt *x* und der Enthalpie *h* für die Berechnung von heizungs- und raumlufttechnischen Anlagen (RLT-Anlagen) in Deutschland und als Basis für die Jahresanalyse des Energieverbrauchs nach der Einzelhäufigkeitsmethode.

pleted climate normal period, i.e. presently from 1961 to 1990. However, since the end of the nineteen-eighties, the air temperature has kept rising. To give better consideration to the obvious changes in the air-temperature regime when planning building services, the *t,x* correlations have been re-calculated for the 15-year period from 1991 to 2005, i.e. half of the current climate normal period.

To allow assessing the climate change that is becoming apparent, the DWD has compiled *t,x* correlation tables, identical to those in DIN 4710, from this 15-year cycle for the 15 stations named here.

It is intended to make this information accessible to the public without delay. The VDI has, therefore, decided to incorporate these tables in the VDI 4710 Series of Guidelines as VDI 4710 Part 3. Like in DIN 4710, no criteria for application are described. The meteorological data are made available to the public without any judgements.

It should be noted that VDI 4710 Part 1, pertaining to the meteorological data of non-European stations, also contains synoptic tables of *t,x* correlations for climate assessment.

The VDI intends to make cross-references from guidelines such as VDI 2078 and VDI 6018 to the data of VDI 4710 Part 3. Furthermore, for certain system types (constant-volume-flow systems), this representation allows the air-conditioning to be calculated more accurately than by means of the nowadays mostly used test-reference-year (TRY) methods, the latter using but a partial collective of the *t,x* correlation for their calculations.

## 1 Scope

This VDI Guideline serves to specify design points (summer and winter) for air temperature, *t*, water vapour content, *x*, and enthalpy, *h*, to be used in the calculation of heating, ventilating and air-conditioning (HVAC) systems in Germany, and as a basis for the analysis of annual energy consumption according to the individual-frequency method.

 

## 2 Normative Verweise / Normative references

Die folgenden zitierten Dokumente sind für die Anwendung dieser Richtlinie erforderlich: /
The following referenced documents are indispensable for the application of this guideline:

DIN 4710:2003-01 Statistiken meteorologischer Daten zur Berechnung des Energiebedarfs von heiz- und raumlufttechnischen Anlagen in Deutschland (Statistics on German meteorological data for calculating the energy requirements for heating and air conditioning equipment)

VDI 4710 Blatt 1:2008-12 Meteorologische Grundlagen für die TGA; Außereuropäische Klimadaten (Meteorological data for building-services purposes; Non-European climatic data)

VDI 4710 Blatt 2:2007-05 Meteorologische Grundlagen für die TGA; Gradtage (Meteorological data for technical building services purposes; Degree days)

## 3 Begriffe

Für die Anwendung dieser Richtlinie gelten die Begriffe nach VDI 4700 und DIN 4710.

## 3 Terms and definitions

For the purpose of this guideline, the terms and definitions as per VDI 4700 and DIN 4710 shall apply.

## 4 Formelzeichen

Für die Anwendung dieser Richtlinie gelten die Formelzeichen nach VDI 4700 und DIN 4710, hier eine Auswahl:

| Formelzeichen | Bedeutung | Einheit |
|---|---|---|
| $h$ | Enthalpie | kJ/kg |
| $p$ | mittlerer Luftdruck in Stationshöhe | hPa |
| $t$ | Lufttemperatur, hier: Außenlufttemperatur | °C |
| $x$ | Wasserdampfgehalt | g Wasserdampf je kg trockener Luft (g WD/kg tr. L.) |
| $\varphi$ | relative Luftfeuchte | % |

## 4 Symbols

For the purpose of this guideline, the symbols as per VDI 4700 and DIN 4710 shall apply, for instance:

| Symbol | Denotes | Unit |
|---|---|---|
| $h$ | enthalpy | kJ/kg |
| $p$ | mean barometric pressure at station height | hPa |
| $t$ | air temperature, here: outdoor-air temperature | °C |
| $x$ | water vapour content | g of water vapour per kg of dry air (g w.v./kg d.a.) |
| $\varphi$ | relative air humidity | % |

## 5 Auswahl und Anwendung der meteorologischen Daten

### 5.1 Stationsauswahl

Die Daten des Deutschen Wetterdiensts (DWD) enthalten für die 15 Stationen der DIN 4710 (zum Teil modifiziert, siehe Tabelle 1 und Bild 1) die mittleren Jahresstunden aller Kombinationen von Außenlufttemperatur und Wasserdampfgehalt, aufsummiert einmal für 24 Stunden je Tag, zum anderen nur für die zwölf Tagesstunden von 6:00 Uhr bis 18:00 Uhr (angepasst an einen normalen Tagesbetrieb einer RLT-Anlage).

## 5 Selection and application of the meteorological data

### 5.1 Selection of station

The data supplied by the German Meteorological Service (DWD) contain, for the 15 stations as per DIN 4710 (partly modified, see Table 1 and Figure 1), the average yearly hours of all combinations of outdoor-air temperature and water vapour content, accumulated over 24 hours a day, and over only twelve hours of the day from 6:00 a.m. to 6:00 p.m. (to suit the normal daily operation of an air-handling system).

Tabelle 1. Repräsentanzstationen nach DIN 4710

1) Bremerhaven
2) Rostock-Warnemünde
3) Hamburg-Fuhlsbüttel
4) Potsdam
5) Essen
6) Bad Marienberg
7) Kassel
8) Braunlage
9) Chemnitz
10) Hof
11) Fichtelberg
12) Mannheim
13) Mühldorf (Passau)[a)]
14) Stötten
15) Garmisch-Partenkirchen

[a)] Die Station Passau stand nicht für den gesamten Untersuchungszeitraum zur Verfügung.

### 5.2 Räumliche Repräsentanz der Stationen

Bei den an Stationen gewonnenen Messdaten handelt es sich im strengen Sinn um Punktmessungen, die zunächst einmal nur für den unmittelbaren Standort des jeweiligen Sensors gelten. Inwieweit die Messdaten auf eine größere Fläche übertragen werden können, hängt zum einen von der Beschaffenheit der Stationsumgebung und zum anderen vom zu messenden Parameter selbst ab.

### 5.3 Datenbasis

Die Messstandorte des DWD sind so positioniert, dass die dort durchgeführten Messungen und Beobachtungen für eine möglichst große Fläche des geografischen Gebiets, in dem die Station liegt, repräsentativ sind.

Entsprechende Daten für nicht in dieser Richtlinie erfasste Stationen liegen beim DWD für ca. 200 Stationen in Deutschland vor und können dort angefordert werden.

In Bezug auf die Stationsumgebung gilt grundsätzlich, dass der räumliche Repräsentanzbereich der Messungen umso kleiner ausfällt, je heterogener sich die Stationsumgebung darstellt (z.B. Straßenschlucht oder ebene, baumlose Fläche). Mit Genauigkeitseinschränkungen sind die Stationswerte für die zugeordnete Klimazone anwendbar. Zu beachten sind z.B. größere Höhenunterschiede.

Die vorliegenden *t,x*-Korrelationstabellen basieren auf den an den DWD-Stationen im freien, weitgehend unbebauten Gelände gemessenen Daten. Die Häufigkeit der Kombinationen aus Lufttemperatur *t* und Wasserdampfgehalt *x* kann in Stadtgebieten von den in den Tabellen gezeigten Werten ab-

Table 1. Representative stations as per DIN 4710

1) Bremerhaven
2) Rostock-Warnemünde
3) Hamburg-Fuhlsbüttel
4) Potsdam
5) Essen
6) Bad Marienberg
7) Kassel
8) Braunlage
9) Chemnitz
10) Hof
11) Fichtelberg
12) Mannheim
13) Mühldorf (Passau)[a)]
14) Stötten
15) Garmisch-Partenkirchen

[a)] The Passau station was not available for the entire investigation period.

### 5.2 Spatial representativeness of the stations

The measured data collected at each station are, strictly speaking, point measurements that are, for the time being, only applicable to the site proper of the respective sensor. It depends on the nature of the station environment and on the parameter to be measured itself to what extent the applicability of the measured data may be extended to a larger surface area.

### 5.3 Basis of data

The DWD measuring sites are positioned in such a manner that the measurements and observations made there are representative of as large as possible an area of the geographical region in which the station is located.

Pertinent data for stations not covered by this guideline are available upon request from the DWD for approximately 200 stations in Germany.

As regards the station environment, the range of spatial representativeness of the measurements will, as a general rule, be the smaller the more heterogeneous the station environment (e.g. an urban canyon or a plain without trees). With reservations regarding accuracy, the station values can be applied to the associated climate zone. Take into account, e.g., major differences in elevation.

The *t,x* correlation tables presented here are based on the data measured at the DWD stations in open, largely undeveloped terrain. In urban areas, the frequency of the combinations of air temperature, *t*, and water vapour content, *x*, may differ from the tabulated values. Higher values of *t* and *x*

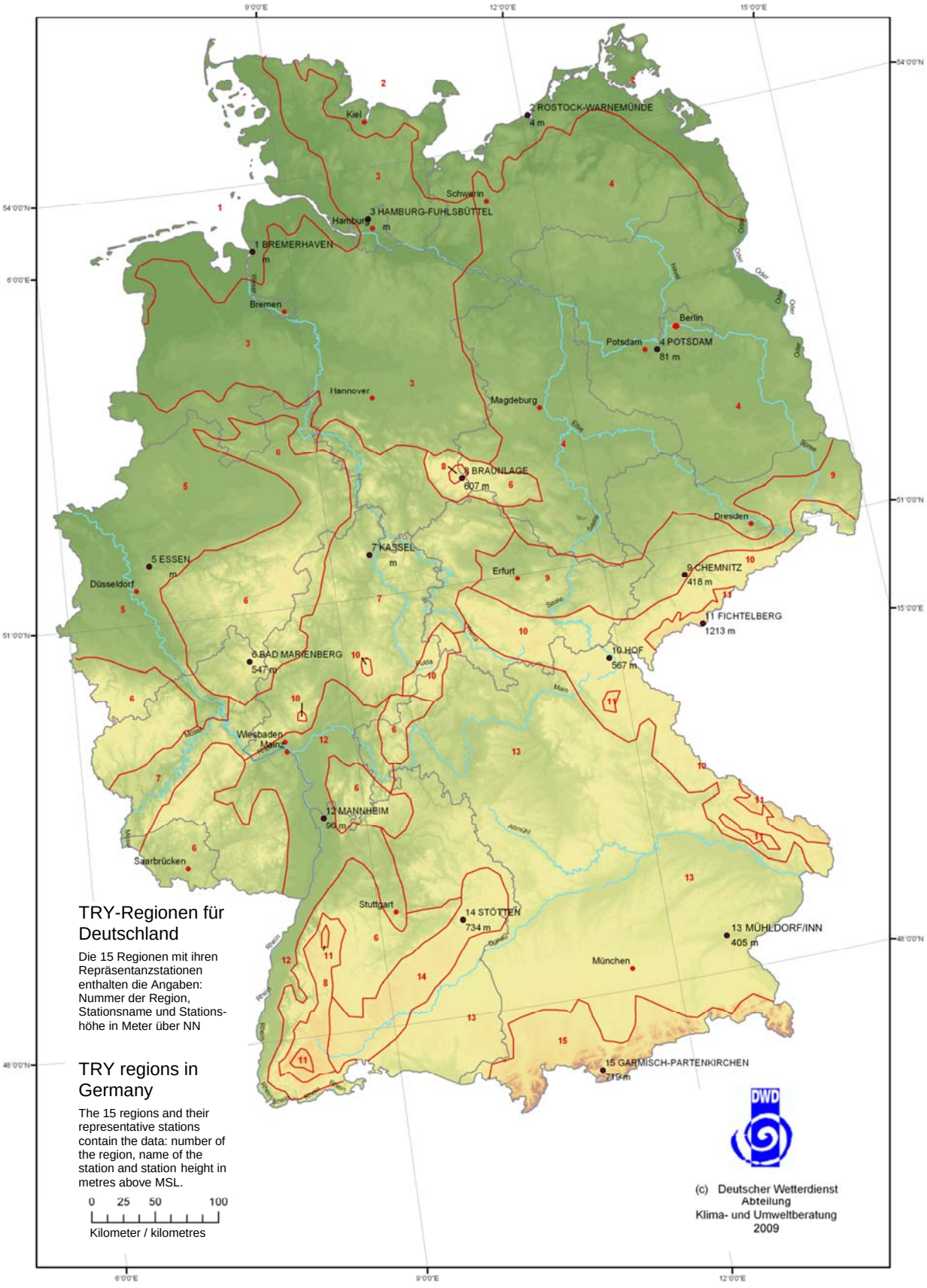


Bild 1. TRY-Regionen in Deutschland

Figure 1. TRY regions in Germany

weichen. In den Nachtstunden sind höhere Werte in *t* und *x* möglich. Am Tag fällt die Erhöhung der Lufttemperatur gegenüber dem Umland geringer aus.

Zu beachten ist für die Anordnung von Luftansaugstellen, dass sich im Dachbereich bei dunkler Dachhaut im Tagesverlauf eine besonders starke Temperaturerhöhung ergeben kann.

Meteorologische Messungen zeigen, dass in der Stadt während der Mittagsstunden auch leicht niedrigere Lufttemperaturen und niedrigerer Wasserdampfgehalt auftreten können.

Trotz dieser mikroklimatisch durchaus merklichen Unterschiede in den Zonen ist die hier gegebene Information über 15 Stationsklassen in Deutschland ein wichtiger Schritt voran gegenüber einer Grobbetrachtung, bei der Deutschland nur durch eine einzige Repräsentanzstation (Würzburg) charakterisiert wird.

### 5.4 Datendarstellung

Analog zur DIN 4710 sind die tabellarischen Datendarstellungen wie folgt gewählt:

Die in den Tabellen angegebenen Zahlenwerte bedeuten die im Mittel jährlich aufgetretenen Häufigkeiten (in Zehntelstunden) für den jeweiligen Zustandspunkt (*t*,*x*); sie dienen als ein Ausgangspunkt für die Auslegung von Anlagen.

Beispiel 1

Das Wertepaar (*t*,*x*) = (0,2)
beschreibt das Intervall
*t* = (0...0,9) °C, *x* = (2...2,9) g WD/kg tr. L.

Beispiel 2

Das Wertepaar (*t*,*x*) = (–0,2)
beschreibt das Intervall
*t* = (–0,9...0) °C, *x* = (2...2,9) g WD/kg tr. L.

Es ist eine Einzelhäufigkeit für *t* und *x* (Aufsummierung einer Zeile oder Spalte) am rechten und am unteren Tabellenrand angegeben. Darüber hinaus ist eine Summenhäufigkeit angegeben, in der sämtliche Temperatursummen bzw. Wasserdampfsummen aufaddiert sind. Somit kann man sehr einfach verschiedene Rechnungen mit Teilkollektiven durchführen (z.B. kann man Befeuchtungsgrammstunden und Entfeuchtungsgrammstunden in einfacher Weise sehr genau ermitteln, entsprechend Gradstunden). Zusätzlich wurden die sommerlichen Enthalpien im Bereich zwischen 80 kJ/kg und 42 kJ/kg als Summenhäufigkeitsdarstellung in den Tabellen angegeben.

Diese Zusatztabelle ermöglicht in einfacher Weise die Risikobewertung einer Enthalpieauslegung von Luftkühlern und Kühltürmen bei RLT-Anlagen.

are possible during night-time hours. During the day, the air-temperature rise compared to the environs is less significant.

With regard to the arrangement of air intakes, mind that the temperature rise during the course of the day may be particularly significant in roof areas with dark cladding.

Meteorological measurements show that slightly lower air temperatures and lower water vapour content may also occur in cities around noon.

Despite these differences within the zones, quite perceivable at the microclimatic level, the information provided here about 15 station classes in Germany is an important step ahead against a rough analysis that characterises Germany by just one representative station (Würzburg).

### 5.4 Representation of the data

The tabular representations of the data have been chosen in analogy to DIN 4710, as follows:

The numerical values given in the tables are the average yearly frequencies (in tenths of an hour) for the respective state point (*t*,*x*); they serve as a starting point for the design of systems.

Example 1

The pair of values (*t*,*x*) = (0,2)
describes the interval
*t* = (0...0,9) °C, *x* = (2...2,9) g w.v./kg d.a.

Example 2

The pair of values (*t*,*x*) = (–0,2)
describes the interval
*t* = (–0,9...0) °C, *x* = (2...2,9) g w.v./kg d.a.

Individual frequencies of *t* and *x* (sums of a row or column) are given at the right-hand margin and at the bottom of the table. Cumulative frequencies are also given, in terms of the sum of all temperature sums and the sum of all water vapour sums. Various calculations with partial collectives are thus performed very easily (for instance, humidification gram-hours and dehumidification gram-hours are very easily determined to high accuracy; the same holds for degree-hours). Additionally, the summertime enthalpies between 80 kJ/kg and 42 kJ/kg are given in the tables as cumulative frequencies.

With this additional table, the enthalpy design of air coolers and cooling towers of air-conditioning systems can be risk-assessed in a simple manner.

 

Tabelle 2 zeigt beispielhaft für die 15 Stationen, wie viele Stunden im Jahr der Grenzwert von 60 kJ/kg überschritten wird.

Die *t,x*-Korrelation hat große Ähnlichkeit mit einem *h,x*-Diagramm. Man kann sich daher die Enthalpielinien nahezu als Geraden hineindenken (siehe Bild 2.) Die Taupunktsituation hinsichtlich der Sättigungslinie bildet sich markant ab.

Tabelle 2. Enthalpieüberschreitungen in h/a von $h$ = 60 kJ/kg

| | **Station** | **Überschreitungsdauer** in h/a |
|---|---|---|
| 1 | Bremerhaven | 28,6 |
| 2 | Rostock | 16,9 |
| 3 | Hamburg | 21,7 |
| 4 | Potsdam | 43,4 |
| 5 | Essen | 30,6 |
| 6 | Bad Marienberg | 8,5 |
| 7 | Kassel | 27,2 |
| 8 | Braunlage | 4,6 |
| 9 | Chemnitz | 21,7 |
| 10 | Hof | 10,9 |
| 11 | Fichtelberg | 1,3 |
| 12 | Mannheim | 72,1 |
| 13 | Mühldorf/Inn | 64,9 |
| 14 | Stötten | 14,3 |
| 15 | Garmisch-Partenkirchen | 19,0 |

## 6 Auslegungspunkte für Sommer- und Winterfall bei angemessenem Überschreitungsrisiko 0,1 % (9 h/a)

Für die 15 deutschen Stationen zeigt Tabelle 3 Auslegungsdaten hinsichtlich sommerlicher und winterlicher Temperaturen sowie sommerlicher Enthalpien mit einem für die meisten Anwendungen angemessenen Risiko.

Für Sonderfälle lassen sich auf Basis der Originaldaten andere Werte ermitteln.

Aufschlussreich ist aber die Erkenntnis über die Variationsbreite gerade auch der Enthalpie zwischen den 15 Stationen.

Gemäß den in Deutschland bisher üblichen Auslegungen (Winter gemäß DIN 4701 oder EN 12831, Sommer gemäß VDI 2078) beträgt das Überschreitungsrisiko ca. 0,1 %, allerdings im Sommer nicht differenziert, sondern auf vier Zonen beschränkt. Angegeben sind in Tabelle 3 nun nach den neuen

As an example, Table 2 shows, for the 15 stations, the number of hours in one year during which the limiting value of 60 kJ/kg is exceeded.

The *t,x* correlation shows a great similarity to an *h,x* diagram. One may, therefore, easily imagine the enthalpy lines as almost straight lines (see Figure 2). The dew-point situation with regard to the saturation line is clearly discernible.

Table 2. Enthalpies exceeding $h$ = 60 kJ/kg, in h/a

| | **Station** | **Exceedance period** in h/a |
|---|---|---|
| 1 | Bremerhaven | 28,6 |
| 2 | Rostock | 16,9 |
| 3 | Hamburg | 21,7 |
| 4 | Potsdam | 43,4 |
| 5 | Essen | 30,6 |
| 6 | Bad Marienberg | 8,5 |
| 7 | Kassel | 27,2 |
| 8 | Braunlage | 4,6 |
| 9 | Chemnitz | 21,7 |
| 10 | Hof | 10,9 |
| 11 | Fichtelberg | 1,3 |
| 12 | Mannheim | 72,1 |
| 13 | Mühldorf/Inn | 64,9 |
| 14 | Stötten | 14,3 |
| 15 | Garmisch-Partenkirchen | 19,0 |

## 6 Design points for the summer and winter seasons, assuming an adequate exceedance risk of 0,1 % (9 h/a)

For the 15 German stations, Table 3 shows design data regarding summertime and wintertime temperatures as well as summertime enthalpies, assuming the risk is adequate for most applications.

In special cases, other values can be determined on the basis of the original data.

However, the variation range, particularly of the enthalpies, among the 15 stations is insightful information.

In accordance with the designs that have so far been common in Germany (winter as per DIN 4701 or EN 12831, summer as per VDI 2078), the exceedance risk is approximately 0,1 %, albeit not differentiated in summer, but limited to four zones. Based on the new climate

| t/x | 0,5 | 1,5 | 2,5 | 3,5 | 4,5 | 5,5 | 6,5 | 7,5 | 8,5 | 9,5 | 10,5 | 11,5 | 12,5 | 13,5 | 14,5 | 15,5 | 16,5 | 17,5 | 18,5 | 19,5 | 20,5 | 21,5 | 22,5 | 23,5 | 24,5 | 25,5 | 26,5 | 27,5 | 28,5 | 29,5 | 30,5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47,5 | 49,3 | 51,9 | 54,4 | 57,0 | 59,6 | 62,2 | 64,8 | 67,4 | 70,0 | 72,6 | 75,2 | 77,8 | 80,3 | 82,9 | 85,5 | 88,1 | 90,7 | 93,3 | 95,9 | 98,5 | 101,1 | 103,6 | 106,2 | 108,8 | 111,4 | 114,0 | 116,6 | 119,2 | 121,8 | 124,4 | 127,0 |
| 46,5 | 48,3 | 50,8 | 53,4 | 56,0 | 58,6 | 61,2 | 63,8 | 66,4 | 69,0 | 71,5 | 74,1 | 76,7 | 79,3 | 81,9 | 84,5 | 87,1 | 89,7 | 92,2 | 94,8 | 97,4 | 100,0 | 102,6 | 105,2 | 107,8 | 110,4 | 112,9 | 115,5 | 118,1 | 120,7 | 123,3 | 125,9 |
| 45,5 | 47,2 | 49,8 | 52,4 | 55,0 | 57,6 | 60,2 | 62,8 | 65,3 | 67,9 | 70,5 | 73,1 | 75,7 | 78,3 | 80,9 | 83,4 | 86,0 | 88,6 | 91,2 | 93,8 | 96,4 | 99,0 | 101,5 | 104,1 | 106,7 | 109,3 | 111,9 | 114,5 | 117,1 | 119,6 | 122,2 | 124,8 |
| 44,5 | 46,2 | 48,8 | 51,4 | 54,0 | 56,6 | 59,2 | 61,7 | 64,3 | 66,9 | 69,5 | 72,1 | 74,7 | 77,2 | 79,8 | 82,4 | 85,0 | 87,6 | 90,2 | 92,7 | 95,3 | 97,9 | 100,5 | 103,1 | 105,7 | 108,2 | 110,8 | 113,4 | 116,0 | 118,6 | 121,2 | 123,7 |
| 43,5 | 45,2 | 47,8 | 50,4 | 53,0 | 55,6 | 58,1 | 60,7 | 63,3 | 65,9 | 68,5 | 71,0 | 73,6 | 76,2 | 78,8 | 81,4 | 84,0 | 86,5 | 89,1 | 91,7 | 94,3 | 96,9 | 99,4 | 102,0 | 104,6 | 107,2 | 109,8 | 112,4 | 114,9 | 117,5 | 120,1 | 122,7 |
| 42,5 | 44,2 | 46,8 | 49,4 | 52,0 | 54,5 | 57,1 | 59,7 | 62,3 | 64,9 | 67,4 | 70,0 | 72,6 | 75,2 | 77,8 | 80,3 | 82,9 | 85,5 | 88,1 | 90,7 | 93,2 | 95,8 | 98,4 | 101,0 | 103,6 | 106,1 | 108,7 | 111,3 | 113,9 | 116,5 | 119,0 | 121,6 |
| 41,5 | 43,2 | 45,8 | 48,4 | 50,9 | 53,5 | 56,1 | 58,7 | 61,3 | 63,8 | 66,4 | 69,0 | 71,6 | 74,1 | 76,7 | 79,3 | 81,9 | 84,5 | 87,0 | 89,6 | 92,2 | 94,8 | 97,3 | 99,9 | 102,5 | 105,1 | 107,7 | 110,2 | 112,8 | 115,4 | 118,0 | 120,5 |
| 40,5 | 42,2 | 44,8 | 47,3 | 49,9 | 52,5 | 55,1 | 57,7 | 60,2 | 62,8 | 65,4 | 68,0 | 70,5 | 73,1 | 75,7 | 78,3 | 80,8 | 83,4 | 86,0 | 88,6 | 91,1 | 93,7 | 96,3 | 98,9 | 101,4 | 104,0 | 106,6 | 109,2 | 111,8 | 114,3 | 116,9 | 119,5 |
| 39,5 | 41,2 | 43,8 | 46,3 | 48,9 | 51,5 | 54,1 | 56,6 | 59,2 | 61,8 | 64,4 | 66,9 | 69,5 | 72,1 | 74,7 | 77,2 | 79,8 | 82,4 | 84,9 | 87,5 | 90,1 | 92,7 | 95,2 | 97,8 | 100,4 | 103,0 | 105,5 | 108,1 | 110,7 | 113,3 | 115,8 | 118,4 |
| 38,5 | 40,2 | 42,7 | 45,3 | 47,9 | 50,5 | 53,0 | 55,6 | 58,2 | 60,8 | 63,3 | 65,9 | 68,5 | 71,0 | 73,6 | 76,2 | 78,8 | 81,3 | 83,9 | 86,5 | 89,1 | 91,6 | 94,2 | 96,8 | 99,3 | 101,9 | 104,5 | 107,1 | 109,6 | 112,2 | 114,8 | 117,3 |
| 37,5 | 39,2 | 41,7 | 44,3 | 46,9 | 49,4 | 52,0 | 54,6 | 57,2 | 59,7 | 62,3 | 64,9 | 67,4 | 70,0 | 72,6 | 75,2 | 77,7 | 80,3 | 82,9 | 85,4 | 88,0 | 90,6 | 93,1 | 95,7 | 98,3 | 100,9 | 103,4 | 106,0 | 108,6 | 111,1 | 113,7 | 116,3 |
| 36,5 | 38,1 | 40,7 | 43,3 | 45,9 | 48,4 | 51,0 | 53,6 | 56,1 | 58,7 | 61,3 | 63,8 | 66,4 | 69,0 | 71,5 | 74,1 | 76,7 | 79,3 | 81,8 | 84,4 | 87,0 | 89,5 | 92,1 | 94,7 | 97,2 | 99,8 | 102,4 | 104,9 | 107,5 | 110,1 | 112,6 | 115,2 |
| 35,5 | 37,1 | 39,7 | 42,3 | 44,8 | 47,4 | 50,0 | 52,5 | 55,1 | 57,7 | 60,2 | 62,8 | 65,4 | 67,9 | 70,5 | 73,1 | 75,6 | 78,2 | 80,8 | 83,3 | 85,9 | 88,5 | 91,0 | 93,6 | 96,2 | 98,7 | 101,3 | 103,9 | 106,4 | 109,0 | 111,6 | 114,1 |
| 34,5 | 36,1 | 38,7 | 41,3 | 43,8 | 46,4 | 49,0 | 51,5 | 54,1 | 56,6 | 59,2 | 61,8 | 64,3 | 66,9 | 69,5 | 72,0 | 74,6 | 77,2 | 79,7 | 82,3 | 84,9 | 87,4 | 90,0 | 92,6 | 95,1 | 97,7 | 100,3 | 102,8 | 105,4 | 108,0 | 110,5 | 113,1 |
| 33,5 | 35,1 | 37,7 | 40,2 | 42,8 | 45,4 | 47,9 | 50,5 | 53,1 | 55,6 | 58,2 | 60,7 | 63,3 | 65,9 | 68,4 | 71,0 | 73,6 | 76,1 | 78,7 | 81,3 | 83,8 | 86,4 | 88,9 | 91,5 | 94,1 | 96,6 | 99,2 | 101,8 | 104,3 | 106,9 | 109,5 | 112,0 |
| 32,5 | 34,1 | 36,7 | 39,2 | 41,8 | 44,4 | 46,9 | 49,5 | 52,0 | 54,6 | 57,2 | 59,7 | 62,3 | 64,8 | 67,4 | 70,0 | 72,5 | 75,1 | 77,7 | 80,2 | 82,8 | 85,3 | 87,9 | 90,5 | 93,0 | 95,6 | 98,1 | 100,7 | 103,3 | 105,8 | 108,4 | 110,9 |
| 31,5 | 33,1 | 35,7 | 38,2 | 40,8 | 43,3 | 45,9 | 48,5 | 51,0 | 53,6 | 56,1 | 58,7 | 61,3 | 63,8 | 66,4 | 68,9 | 71,5 | 74,0 | 76,6 | 79,2 | 81,7 | 84,3 | 86,8 | 89,4 | 92,0 | 94,5 | 97,1 | 99,6 | 102,2 | 104,8 | 107,3 | |
| 30,5 | 32,1 | 34,6 | 37,2 | 39,8 | 42,3 | 44,9 | 47,4 | 50,0 | 52,5 | 55,1 | 57,7 | 60,2 | 62,8 | 65,3 | 67,9 | 70,4 | 73,0 | 75,6 | 78,1 | 80,7 | 83,2 | 85,8 | 88,4 | 90,9 | 93,5 | 96,0 | 98,6 | 101,1 | | | |
| 29,5 | 31,1 | 33,6 | 36,2 | 38,7 | 41,3 | 43,9 | 46,4 | 49,0 | 51,5 | 54,1 | 56,6 | 59,2 | 61,7 | 64,3 | 66,9 | 69,4 | 72,0 | 74,5 | 77,1 | 79,6 | 82,2 | 84,7 | 87,3 | 89,9 | 92,4 | 95,0 | 97,5 | | | | |
| 28,5 | 30,1 | 32,6 | 35,2 | 37,7 | 40,3 | 42,8 | 45,4 | 47,9 | 50,5 | 53,0 | 55,6 | 58,2 | 60,7 | 63,3 | 65,8 | 68,4 | 70,9 | 73,5 | 76,0 | 78,6 | 81,1 | 83,7 | 86,3 | 88,8 | 91,4 | | | | | | |
| 27,5 | 29,1 | 31,6 | 34,2 | 36,7 | 39,3 | 41,8 | 44,4 | 46,9 | 49,5 | 52,0 | 54,6 | 57,1 | 59,7 | 62,2 | 64,8 | 67,3 | 69,9 | 72,4 | 75,0 | 77,5 | 80,1 | 82,6 | 85,2 | 87,8 | | | | | | | |
| 26,5 | 28,0 | 30,6 | 33,1 | 35,7 | 38,2 | 40,8 | 43,3 | 45,9 | 48,4 | 51,0 | 53,5 | 56,1 | 58,6 | 61,2 | 63,7 | 66,3 | 68,8 | 71,4 | 73,9 | 76,5 | 79,0 | 81,6 | | | | | | | | | |
| 25,5 | 27,0 | 29,6 | 32,1 | 34,7 | 37,2 | 39,8 | 42,3 | 44,9 | 47,4 | 50,0 | 52,5 | 55,1 | 57,6 | 60,2 | 62,7 | 65,3 | 67,8 | 70,4 | 72,9 | 75,4 | 78,0 | | | | | | | | | | |
| 24,5 | 26,0 | 28,6 | 31,1 | 33,7 | 36,2 | 38,8 | 41,3 | 43,8 | 46,4 | 48,9 | 51,5 | 54,0 | 56,6 | 59,1 | 61,7 | 64,2 | 66,8 | 69,3 | 71,9 | 74,4 | | | | | | | | | | | |
| 23,5 | 25,0 | 27,6 | 30,1 | 32,6 | 35,2 | 37,7 | 40,3 | 42,8 | 45,4 | 47,9 | 50,5 | 53,0 | 55,5 | 58,1 | 60,6 | 63,2 | 65,7 | 68,3 | 70,8 | | | | | | | | | | | | |
| 22,5 | 24,0 | 26,5 | 29,1 | 31,6 | 34,2 | 36,7 | 39,3 | 41,8 | 44,3 | 46,9 | 49,4 | 52,0 | 54,5 | 57,1 | 59,6 | 62,1 | 64,7 | | | | | | | | | | | | | | |
| 21,5 | 23,0 | 25,5 | 28,1 | 30,6 | 33,1 | 35,7 | 38,2 | 40,8 | 43,3 | 45,9 | 48,4 | 50,9 | 53,5 | 56,0 | 58,6 | 61,1 | | | | | | | | | | | | | | | |
| 20,5 | 22,0 | 24,5 | 27,1 | 29,6 | 32,1 | 34,7 | 37,2 | 39,7 | 42,3 | 44,8 | 47,4 | 49,9 | 52,4 | 55,0 | 57,5 | | | | | | | | | | | | | | | | |
| 19,5 | 21,0 | 23,5 | 26,0 | 28,6 | 31,1 | 33,6 | 36,2 | 38,7 | 41,3 | 43,8 | 46,3 | 48,9 | 51,4 | 53,9 | | | | | | | | | | | | | | | | | |
| 18,5 | 20,0 | 22,5 | 25,0 | 27,6 | 30,1 | 32,6 | 35,2 | 37,7 | 40,2 | 42,8 | 45,3 | 47,8 | 50,4 | 52,9 | | | | | | | | | | | | | | | | | |
| 17,5 | 18,9 | 21,5 | 24,0 | 26,5 | 29,1 | 31,6 | 34,1 | 36,7 | 39,2 | 41,7 | 44,3 | 46,8 | 49,3 | | | | | | | | | | | | | | | | | | |
| 16,5 | 17,9 | 20,5 | 23,0 | 25,5 | 28,1 | 30,6 | 33,1 | 35,7 | 38,2 | 40,7 | 43,2 | 45,8 | | | | | | | | | | | | | | | | | | | |
| 15,5 | 16,9 | 19,4 | 22,0 | 24,5 | 27,0 | 29,6 | 32,1 | 34,6 | 37,2 | 39,7 | 42,2 | | | | | | | | | | | | | | | | | | | | |
| 14,5 | 15,9 | 18,4 | 21,0 | 23,5 | 26,0 | 28,5 | 31,1 | 33,6 | 36,1 | 38,7 | | | | | | | | | | | | | | | | | | | | | |
| 13,5 | 14,9 | 17,4 | 20,0 | 22,5 | 25,0 | 27,5 | 30,1 | 32,6 | 35,1 | 37,6 | | | | | | | | | | | | | | | | | | | | | |
| 12,5 | 13,9 | 16,4 | 18,9 | 21,5 | 24,0 | 26,5 | 29,0 | 31,6 | 34,1 | | | | | | | | | | | | | | | | | | | | | | |
| 11,5 | 12,9 | 15,4 | 17,9 | 20,4 | 23,0 | 25,5 | 28,0 | 30,5 | 33,1 | | | | | | | | | | | | | | | | | | | | | | |
| 10,5 | 11,9 | 14,4 | 16,9 | 19,4 | 21,9 | 24,5 | 27,0 | 29,5 | | | | | | | | | | | | | | | | | | | | | | | |
| 9,5 | 10,9 | 13,4 | 15,9 | 18,4 | 20,9 | 23,4 | 26,0 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8,5 | 9,8 | 12,4 | 14,9 | 17,4 | 19,9 | 22,4 | 24,9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7,5 | 8,8 | 11,3 | 13,9 | 16,4 | 18,9 | 21,4 | 23,9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6,5 | 7,8 | 10,3 | 12,8 | 15,4 | 17,9 | 20,4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5,5 | 6,8 | 9,3 | 11,8 | 14,3 | 16,9 | 19,4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4,5 | 5,8 | 8,3 | 10,8 | 13,3 | 15,8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3,5 | 4,8 | 7,3 | 9,8 | 12,3 | 14,8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,5 | 3,8 | 6,3 | 8,8 | 11,3 | 13,8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,5 | 2,8 | 5,3 | 7,8 | 10,3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0,5 | 1,8 | 4,3 | 6,8 | 9,3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -0,5 | 0,7 | 3,2 | 5,7 | 8,2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -1,5 | -0,3 | 2,2 | 4,7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -2,5 | -1,3 | 1,2 | 3,7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -3,5 | -2,3 | 0,2 | 2,7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -4,5 | -3,3 | -0,8 | 1,7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -5,5 | -4,3 | -1,8 | 0,7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -6,5 | -5,3 | -2,8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -7,5 | -6,3 | -3,8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -8,5 | -7,3 | -4,9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -9,5 | -8,4 | -5,9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10,5 | -9,4 | -6,9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -11,5 | -10,4 | -7,9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -12,5 | -11,4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -13,5 | -12,4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -14,5 | -13,4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -15,5 | -14,4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -16,5 | -15,4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -17,5 | -16,4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -18,5 | -17,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -19,5 | -18,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20,5 | -19,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -21,5 | -20,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -22,5 | -21,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -23,5 | -22,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -24,5 | -23,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -25,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -26,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -27,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -28,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -29,5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

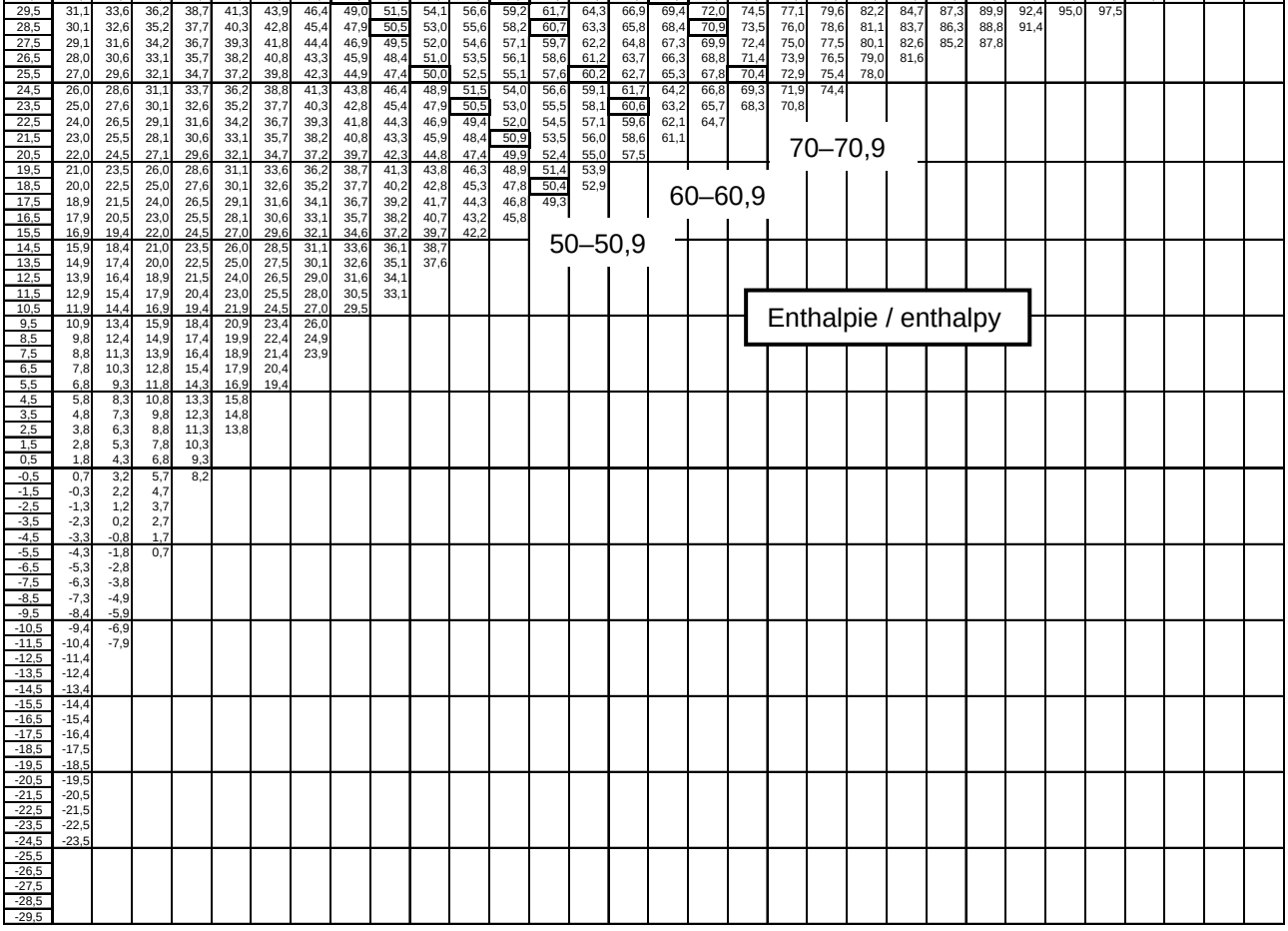


Bild 2. Enthalpie *h* (kJ/kg tr.L.), berechnet für Temperatur-/Feuchte-**Mittel**werte im jeweiligen *t*,*x*-Intervall
Verdeutlichung des Verlaufs der Enthalpielinien für 1000 hPa

**Anmerkung:** Das Bild dient lediglich der rein grafischen Veranschaulichung. Die Zahlenwerte können dem Datenträger entnommen werden.

Figure 2. Enthalpy, *h*, (kJ/kg d.a.) calculated for temperature/humidity **mean** values in the respective *t*,*x* interval
Illustration of the enthalpy characteristics for 1000 hPa

**Note:** The figure is merely intended for purely graphical illustration. The numerical values can be taken from the data carrier.

Klimadaten 1991 bis 2005 die Auslegungstemperaturen mit dem Risiko von 0,1 %.

Wichtig sind die Daten vor allem zur korrekten Auslegung von Luftkühlern und Rückkühlwerken von Kältemaschinen.

Es sei darauf hingewiesen, dass ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) bei den Auslegungen

data from 1991 to 2005, Table 3 now lists the design temperatures assuming 0,1 % risk.

The data are crucial, in particular, to the proper design of air coolers and heat exchangers for chillers.

It should be noted that ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) permits different risks to be assumed

andere Risiken zulässt (0,4 %, 1 %, 2 %), die mit der deutschen Auslegungstradition nicht in Einklang zu bringen sind.[1)]

**Anmerkung:** Wenn auch die Temperaturen für die Kühllastrechnung wegen der heute extrem guten Dämmung der Gebäude nicht wesentlich sind, ist bei der Kühler- und Kühlturmauslegung das Risiko gering halten, um Probleme zu vermeiden [2].

for the designs (0,4 %, 1 %, 2 %), which are incompatible with German design tradition.[1)]

**Note:** Given excellent thermal insulation of buildings nowadays, the temperatures are not relevant to the cooling-load calculation. However, the risk in designing coolers and cooling towers must be minimised in order to avoid problems [2].

Tabelle 3. Auslegungstemperaturen und -enthalpien in Deutschland bei Risiko als 0,1 % Überschreitungshäufigkeit (Basis: Messwerte 24 h/d)

Table 3. Design temperatures and enthalpies in Germany, assuming the risk as 0,1 % exceedance frequency (based on values measured 24 h/d)

| **Repräsentanzstation / Representative station DIN 4710** | **Sommer / Summer** | | **Winter** |
|---|---|---|---|
| | Temperatur *t* / Temperature, *t*, in °C | Enthalpie *h* / Enthalpy, *h*, in kJ/kg | Temperatur *t* / Temperature, *t*, in °C |
| Bremerhaven | 30 | 63 | –10 |
| Rostock-Warnemünde | 30 | 61 | –10 |
| Hamburg-Fuhlsbüttel | 31 | 62 | –12 |
| Potsdam | 33 | 64 | –14 |
| Essen | 31 | 64 | –10 |
| Bad Marienberg | 29 | 59 | –12 |
| Kassel | 32 | 63 | –12 |
| Braunlage | 28 | 58 | –15 |
| Chemnitz | 31 | 62 | –14 |
| Hof | 30 | 60 | –16 |
| Fichtelberg | 24 | 54 | –17 |
| Mannheim | 34 | 67 | –12 |
| Mühldorf (Passau) | 32 | 65 | –19 |
| Stötten | 29 | 61 | –14 |
| Garmisch-Partenkirchen | 31 | 62 | –17 |

Definitionen zur Wahl der angegebenen Auslegungswerte:

- Es wurde die ganzzahlige sommerliche Auslegungstemperatur in °C gewählt, die etwa in 0,1 % der Jahresstunden (ca. 9 h/a) überschritten wird.
- Es wurde die ganzzahlige Enthalpie in kJ/kg gewählt, die etwa in 0,1 % der Jahresstunden überschritten wird.
- Es wurde die ganzzahlige winterliche Außentemperatur in °C angegeben, die etwa in 0,1 % der Jahresstunden unterschritten wird.

Definitions for the selection of the design values given:

- That integer summertime design temperature value, in °C, was chosen as is exceeded during approximately 0,1 % of the yearly hours (approximately 9 h/a).
- That integer enthalpy value, in kJ/kg, was chosen as is exceeded during approximately 0,1 % of the yearly hours.
- That integer wintertime outdoor temperature value, in °C, was given as is not reached during approximately 0,1 % of the yearly hours.

[1)] 0,4 % Risiko in Mannheim bedeutet im Sommer z. B. t = 32°C, h = 63 kJ/kg, 1 % Risiko t = 30°C, h = 59 kJ/kg.

[1)] 0,4 % risk in Mannheim means, e.g. in summer, t = 32 °C, h = 63 kJ/kg; 1 % risk means t = 30 °C, h = 59 kJ/kg.

## Anhang *t,x*-Korrelation, ganztägig

Das gesamte Datenmaterial findet sich in Form von MS-Excel®-Dateien auf der beigefügten CD-ROM.

**Anmerkung:** Diese Anmerkung und die nachfolgende Tabelle betreffen ausschließlich die englische Sprachfassung der Richtlinie.

## Annex *t,x* correlation, 24 hours a day

All data are available in the form of MS-Excel® files on the CD-ROM supplied with this guideline.

**Note:** In order to reduce the printing cost by avoiding the duplication of the tables, a key for the table entries is given here.

| German | English |
|---|---|
| Korrelation Lufttemperatur *t* (in °C) / | correllation air temperature, *t* (in °C) / |
| Wasserdampfgehalt *x* (in g/kg tr. Luft); | water vapour content, *x* (in g/kg d.a.); |
| sommerliche Enthalpiesummen | summertime enthalpy sums |
| Zeitraum 1991 bis 2005 | period 1991 to 2005 |
| Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), | average yearly number of incidents (in tenths of an hour), |
| 24 stündliche Messwerte je Tag | 24 hourly measured values per day |
| Summe | sum |
| Summenhäufigkeit | cumulative frequency |
| Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden) | cumulative frequency of summertime enthalpies (in tenths of an hour) |
| Enthalpie (kJ/kg tr. L.) | enthalpy (kJ/kg d.a.) |
| Grenzfeuchte (g/kg tr. L.) | humidity limit (g/kg d.a.) |
| Befeuchtungsgrammstunden (gh/kg tr. L.) | humidification gram-hours (gh/kg d.a.) |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | dehumidification gram-hours (gh/kg d.a.) |
| Grenztemperat. (°C) | temp. limit (°C) |
| Gradtage (Kd) | degree days (Kd) |

# Tabelle A1. 24-Stundenwerte für Bremerhaven / Table A1. 24-hour values for Bremerhaven

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.1 - Bremerhaven; Zeitraum 1991 bis 2005; p = 1014 hPa**
**Tabelle 3.1.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | | | | | | | | 1 | | | | | | | 1 | 1 |
| 34 | | | | | | | | | | | | | | 1 | 1 | | | | | | 2 | 3 |
| 33 | | | | | | | | 1 | 1 | 1 | 3 | | 1 | 1 | | | | | | | 8 | 11 |
| 32 | | | | | | 1 | 2 | 9 | 2 | 3 | 5 | 1 | | 3 | | | | | | | 26 | 37 |
| 31 | | | | | | | 3 | 5 | 3 | 3 | 3 | 4 | 2 | 3 | 1 | | | | | | 27 | 64 |
| 30 | | | | 1 | | | 5 | 13 | 7 | 7 | 8 | 18 | 7 | 5 | 3 | | | | | | 74 | 138 |
| 29 | | | | 1 | 5 | 1 | 1 | 15 | 27 | 19 | 11 | 18 | 12 | 12 | 4 | 2 | | | | | 128 | 266 |
| 28 | | | | | 6 | 6 | 4 | 11 | 25 | 31 | 31 | 15 | 12 | 15 | 4 | 2 | 2 | | | | 164 | 430 |
| 27 | | | | | 1 | 4 | 5 | 16 | 30 | 42 | 37 | 27 | 17 | 7 | 7 | 1 | 1 | 1 | | | 196 | 626 |
| 26 | | | | | 2 | 2 | 17 | 29 | 35 | 56 | 51 | 42 | 24 | 21 | 8 | 9 | 1 | 1 | | | 298 | 924 |
| 25 | | | | | 3 | 11 | 19 | 38 | 43 | 53 | 59 | 59 | 39 | 29 | 10 | 5 | 5 | 1 | | | 374 | 1.298 |
| 24 | | | | | 4 | 9 | 25 | 49 | 63 | 71 | 84 | 80 | 67 | 39 | 19 | 5 | 1 | | | | 516 | 1.814 |
| 23 | | | | | 4 | 19 | 29 | 58 | 92 | 98 | 109 | 101 | 99 | 53 | 24 | 5 | | | | | 691 | 2.505 |
| 22 | | | | 2 | 4 | 19 | 45 | 59 | 89 | 109 | 127 | 137 | 119 | 63 | 20 | 4 | | | | | 797 | 3.302 |
| 21 | | | | 1 | 11 | 21 | 49 | 86 | 139 | 175 | 180 | 187 | 151 | 97 | 32 | 1 | | | | | 1.130 | 4.432 |
| 20 | | | 1 | 5 | 13 | 45 | 74 | 110 | 189 | 276 | 301 | 273 | 228 | 98 | 8 | 1 | | | | | 1.622 | 6.054 |
| 19 | | | 5 | 9 | 23 | 55 | 81 | 179 | 243 | 365 | 447 | 390 | 263 | 83 | 2 | | | | | | 2.145 | 8.199 |
| 18 | | | 3 | 15 | 27 | 54 | 101 | 237 | 381 | 590 | 603 | 455 | 228 | 22 | | | | | | | 2.716 | 10.915 |
| 17 | | | 1 | 13 | 28 | 52 | 119 | 371 | 711 | 818 | 724 | 506 | 44 | | | | | | | | 3.387 | 14.302 |
| 16 | | | 3 | 23 | 41 | 82 | 211 | 495 | 924 | 1097 | 809 | 208 | 1 | | | | | | | | 3.894 | 18.196 |
| 15 | | | 4 | 16 | 43 | 124 | 295 | 780 | 1169 | 1189 | 580 | 36 | | | | | | | | | 4.236 | 22.432 |
| 14 | | | 3 | 32 | 57 | 159 | 465 | 1039 | 1563 | 1184 | 133 | | | | | | | | | | 4.635 | 27.067 |
| 13 | | | 6 | 31 | 84 | 236 | 693 | 1362 | 1646 | 451 | | | | | | | | | | | 4.509 | 31.576 |
| 12 | | | 7 | 49 | 110 | 321 | 839 | 1690 | 1034 | 52 | | | | | | | | | | | 4.102 | 35.678 |
| 11 | | | 6 | 57 | 170 | 507 | 1179 | 1705 | 280 | | | | | | | | | | | | 3.904 | 39.582 |
| 10 | | 2 | 15 | 83 | 274 | 758 | 1503 | 1063 | 23 | | | | | | | | | | | | 3.721 | 43.303 |
| 9 | | 1 | 20 | 95 | 340 | 1197 | 1727 | 318 | | | | | | | | | | | | | 3.698 | 47.001 |
| 8 | | 1 | 22 | 138 | 528 | 1789 | 1623 | 16 | | | | | | | | | | | | | 4.117 | 51.118 |
| 7 | | 1 | 36 | 172 | 863 | 2519 | 757 | | | | | | | | | | | | | | 4.348 | 55.466 |
| 6 | | 1 | 49 | 279 | 1623 | 2759 | 113 | | | | | | | | | | | | | | 4.824 | 60.290 |
| 5 | | 5 | 68 | 469 | 2475 | 1725 | | | | | | | | | | | | | | | 4.742 | 65.032 |
| 4 | 1 | 10 | 118 | 632 | 2906 | 543 | | | | | | | | | | | | | | | 4.210 | 69.242 |
| 3 | 1 | 5 | 156 | 865 | 2689 | | | | | | | | | | | | | | | | 3.716 | 72.958 |
| 2 | | 8 | 185 | 1291 | 1771 | | | | | | | | | | | | | | | | 3.255 | 76.213 |
| 1 | | 15 | 263 | 1977 | 607 | | | | | | | | | | | | | | | | 2.862 | 79.075 |
| 0 | | 23 | 411 | 2017 | 8 | | | | | | | | | | | | | | | | 2.459 | 81.534 |
| -0 | | 20 | 521 | 991 | | | | | | | | | | | | | | | | | 1.532 | 83.066 |
| -1 | | 36 | 710 | 553 | | | | | | | | | | | | | | | | | 1.299 | 84.365 |
| -2 | | 47 | 733 | 117 | | | | | | | | | | | | | | | | | 897 | 85.262 |
| -3 | | 66 | 575 | | | | | | | | | | | | | | | | | | 641 | 85.903 |
| -4 | | 115 | 428 | | | | | | | | | | | | | | | | | | 543 | 86.446 |
| -5 | | 148 | 284 | | | | | | | | | | | | | | | | | | 432 | 86.878 |
| -6 | | 162 | 130 | | | | | | | | | | | | | | | | | | 292 | 87.170 |
| -7 | | 139 | 47 | | | | | | | | | | | | | | | | | | 186 | 87.356 |
| -8 | 1 | 118 | 3 | | | | | | | | | | | | | | | | | | 122 | 87.478 |
| -9 | 1 | 75 | | | | | | | | | | | | | | | | | | | 76 | 87.554 |
| -10 | | 41 | | | | | | | | | | | | | | | | | | | 41 | 87.595 |
| -11 | | 21 | | | | | | | | | | | | | | | | | | | 21 | 87.616 |
| -12 | | 12 | | | | | | | | | | | | | | | | | | | 12 | 87.628 |
| -13 | | 6 | | | | | | | | | | | | | | | | | | | 6 | 87.634 |
| -14 | 1 | 2 | | | | | | | | | | | | | | | | | | | 3 | 87.637 |
| -15 | 1 | 1 | | | | | | | | | | | | | | | | | | | 2 | 87.639 |
| -16 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -17 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -18 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -19 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.639 |

Summe

| 6 | 1.081 | 4.813 | 9.934 | 14.720 | 13.018 | 9.984 | 9.754 | 8.719 | 6.690 | 4.305 | 2.557 | 1.314 | 553 | 143 | 35 | 10 | 3 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 6 | 1.087 | 5.900 | 15.834 | 30.554 | 43.572 | 53.556 | 63.310 | 72.029 | 78.719 | 83.024 | 85.581 | 86.895 | 87.448 | 87.591 | 87.626 | 87.636 | 87.639 | 87.639 | 87.639 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 2 | 7 | 16 | 45 | 84 | 143 | 286 | 514 | 882 | 1.436 | 2.224 | 3.345 | 4.581 | 6.638 | 8.881 | 11.739 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 3.810 | 7.517 | 12.373 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.440 | 1.213 | 536 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.412 |
| 17 | 2.774 |
| 15 | 2.196 |
| 10 | 1.065 |

# Tabelle A2. 24-Stundenwerte für Rostock-Warnemünde / Table A2. 24-hour values for Rostock-Warnemünde

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.2 - Rostock-Warnemünde; Zeitraum 1991 bis 2005; *p* = 1014 hPa**
**Tabelle 3.2.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 |
| 35 | | | | | | | 1 | | | | | | | 1 | | | | | | | 2 | 3 |
| 34 | | | | | | | | 1 | | 1 | 1 | 1 | | 1 | 1 | | | | | | 6 | 9 |
| 33 | | | | | | | | 1 | | | 3 | 1 | 1 | 1 | 1 | | | | | | 8 | 17 |
| 32 | | | | | | 1 | 3 | 3 | | 4 | 5 | 2 | 2 | 1 | | | | | | | 21 | 38 |
| 31 | | | | | | | 2 | 5 | 1 | 5 | 6 | 6 | 3 | 1 | 1 | | | | | | 30 | 68 |
| 30 | | | | | | | 3 | 2 | 3 | 5 | 3 | 6 | 3 | 5 | 1 | | | | | | 31 | 99 |
| 29 | | | | | 1 | 1 | 6 | 6 | 5 | 11 | 10 | 9 | 5 | 2 | 2 | | | | | | 58 | 157 |
| 28 | | | | 1 | 1 | 3 | 9 | 16 | 22 | 17 | 11 | 14 | 5 | 6 | 1 | | | | | | 106 | 263 |
| 27 | | | | 1 | 1 | 3 | 7 | 10 | 19 | 30 | 19 | 19 | 10 | 8 | 1 | 1 | | | | | 129 | 392 |
| 26 | | | | 1 | 2 | 4 | 12 | 15 | 29 | 47 | 37 | 30 | 18 | 12 | 7 | 2 | | | | | 216 | 608 |
| 25 | | | | | 2 | 2 | 17 | 22 | 44 | 50 | 59 | 45 | 31 | 31 | 6 | 1 | | | | | 310 | 918 |
| 24 | | | | | 2 | 5 | 21 | 37 | 61 | 56 | 67 | 51 | 69 | 52 | 14 | 3 | | | | | 438 | 1.356 |
| 23 | | | | | 1 | 9 | 17 | 41 | 61 | 75 | 111 | 101 | 94 | 63 | 14 | 1 | | | | | 588 | 1.944 |
| 22 | | | | | 5 | 15 | 23 | 73 | 85 | 133 | 138 | 176 | 115 | 72 | 9 | 2 | | | | | 846 | 2.790 |
| 21 | | | | 1 | 8 | 19 | 33 | 74 | 123 | 165 | 250 | 231 | 162 | 65 | 13 | 1 | | | | | 1.145 | 3.935 |
| 20 | | | | 5 | 11 | 21 | 41 | 83 | 201 | 299 | 337 | 291 | 165 | 73 | 16 | | | | | | 1.543 | 5.478 |
| 19 | | | 2 | 7 | 9 | 19 | 45 | 161 | 316 | 476 | 456 | 344 | 187 | 48 | 1 | | | | | | 2.071 | 7.549 |
| 18 | | | 3 | 10 | 14 | 27 | 87 | 267 | 485 | 675 | 539 | 395 | 220 | 5 | | | | | | | 2.727 | 10.276 |
| 17 | | | 3 | 9 | 20 | 49 | 143 | 350 | 779 | 874 | 637 | 441 | 57 | | | | | | | | 3.362 | 13.638 |
| 16 | | | 3 | 19 | 36 | 75 | 243 | 593 | 1016 | 1069 | 747 | 142 | 5 | | | | | | | | 3.948 | 17.586 |
| 15 | | | 2 | 15 | 44 | 104 | 359 | 830 | 1326 | 1191 | 447 | 19 | | | | | | | | | 4.337 | 21.923 |
| 14 | | | 1 | 19 | 53 | 159 | 497 | 1063 | 1440 | 981 | 86 | | | | | | | | | | 4.299 | 26.222 |
| 13 | | | 4 | 20 | 73 | 219 | 706 | 1269 | 1517 | 316 | | | | | | | | | | | 4.124 | 30.346 |
| 12 | | | 6 | 19 | 89 | 352 | 971 | 1482 | 928 | 43 | | | | | | | | | | | 3.890 | 34.236 |
| 11 | | | 9 | 36 | 153 | 561 | 1156 | 1536 | 214 | | | | | | | | | | | | 3.665 | 37.901 |
| 10 | | 1 | 11 | 55 | 247 | 851 | 1435 | 911 | 13 | | | | | | | | | | | | 3.524 | 41.425 |
| 9 | | | 12 | 73 | 388 | 1171 | 1469 | 185 | | | | | | | | | | | | | 3.298 | 44.723 |
| 8 | | 5 | 25 | 125 | 641 | 1717 | 1140 | 3 | | | | | | | | | | | | | 3.656 | 48.379 |
| 7 | | 2 | 27 | 208 | 1034 | 2307 | 366 | | | | | | | | | | | | | | 3.944 | 52.323 |
| 6 | | 1 | 43 | 343 | 1723 | 1961 | 25 | | | | | | | | | | | | | | 4.096 | 56.419 |
| 5 | | 2 | 65 | 604 | 2613 | 1236 | | | | | | | | | | | | | | | 4.520 | 60.939 |
| 4 | | 5 | 101 | 938 | 3261 | 240 | | | | | | | | | | | | | | | 4.545 | 65.484 |
| 3 | | 5 | 183 | 1529 | 2623 | | | | | | | | | | | | | | | | 4.340 | 69.824 |
| 2 | | 7 | 257 | 2159 | 1599 | | | | | | | | | | | | | | | | 4.022 | 73.846 |
| 1 | | 7 | 429 | 2828 | 361 | | | | | | | | | | | | | | | | 3.625 | 77.471 |
| 0 | | 11 | 603 | 2207 | 2 | | | | | | | | | | | | | | | | 2.823 | 80.294 |
| -0 | | 21 | 780 | 1133 | | | | | | | | | | | | | | | | | 1.934 | 82.228 |
| -1 | | 37 | 1033 | 563 | | | | | | | | | | | | | | | | | 1.633 | 83.861 |
| -2 | 4 | 67 | 971 | 72 | | | | | | | | | | | | | | | | | 1.114 | 84.975 |
| -3 | 3 | 85 | 637 | 1 | | | | | | | | | | | | | | | | | 726 | 85.701 |
| -4 | 4 | 91 | 470 | | | | | | | | | | | | | | | | | | 565 | 86.266 |
| -5 | 2 | 141 | 323 | | | | | | | | | | | | | | | | | | 466 | 86.732 |
| -6 | 1 | 191 | 139 | | | | | | | | | | | | | | | | | | 331 | 87.063 |
| -7 | 2 | 187 | 20 | | | | | | | | | | | | | | | | | | 209 | 87.272 |
| -8 | 2 | 131 | | | | | | | | | | | | | | | | | | | 133 | 87.405 |
| -9 | 5 | 103 | | | | | | | | | | | | | | | | | | | 108 | 87.513 |
| -10 | 2 | 55 | | | | | | | | | | | | | | | | | | | 57 | 87.570 |
| -11 | 3 | 39 | | | | | | | | | | | | | | | | | | | 42 | 87.612 |
| -12 | | 19 | | | | | | | | | | | | | | | | | | | 19 | 87.631 |
| -13 | | 7 | | | | | | | | | | | | | | | | | | | 7 | 87.638 |
| -14 | 2 | 5 | | | | | | | | | | | | | | | | | | | 7 | 87.645 |
| -15 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -16 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -17 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -18 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -19 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.645 |

Summe

| 30 | 1.225 | 6.162 | 13.001 | 15.017 | 11.131 | 8.837 | 9.039 | 8.688 | 6.523 | 3.969 | 2.324 | 1.153 | 447 | 88 | 11 | 0 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 30 | 1.255 | 7.417 | 20.418 | 35.435 | 46.566 | 55.403 | 64.442 | 73.130 | 79.653 | 83.622 | 85.946 | 87.099 | 87.546 | 87.634 | 87.645 | 87.645 | 87.645 | 87.645 | 87.645 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 1 | 3 | 7 | 15 | 32 | 71 | 169 | 369 | 693 | 1.119 | 1.752 | 2.823 | 4.070 | 6.053 | 8.034 | 10.833 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 4.684 | 8.784 | 13.882 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.163 | 1.037 | 437 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.582 |
| 17 | 2.938 |
| 15 | 2.355 |
| 10 | 1.198 |

# Tabelle A3. 24-Stundenwerte für Hamburg-Fuhlsbüttel / Table A3. 24-hour values for Hamburg-Fuhlsbüttel

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.3 - Hamburg-Fuhlsbüttel; Zeitraum 1991 bis 2005; *p* = 1013 hPa**
**Tabelle 3.3.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | 1 | | | | | | | | | 1 | 1 |
| 36 | | | | | | | | | | | 1 | 1 | | | | | | | | | 2 | 3 |
| 35 | | | | | | | | | | | | 1 | 1 | | | | | | | | 2 | 5 |
| 34 | | | | | | 3 | | | 2 | 1 | | 1 | 1 | | | | | | | | 8 | 13 |
| 33 | | | | | | 4 | 1 | 1 | 7 | 5 | 1 | | 1 | 1 | 1 | | | | | | 22 | 35 |
| 32 | | | | | | 3 | 3 | 5 | 7 | 5 | 5 | 1 | 3 | 1 | 1 | | | | | | 34 | 69 |
| 31 | | | | | 1 | 9 | 4 | 6 | 7 | 8 | 7 | 2 | 3 | 3 | 1 | 1 | | | | | 52 | 121 |
| 30 | | | | | 5 | 9 | 8 | 12 | 15 | 11 | 11 | 11 | 7 | 5 | 2 | | | | | | 96 | 217 |
| 29 | | | | | 4 | 15 | 12 | 16 | 31 | 18 | 11 | 19 | 11 | 5 | 3 | 1 | | | | | 146 | 363 |
| 28 | | | | | 1 | 15 | 11 | 29 | 37 | 41 | 23 | 23 | 18 | 12 | 5 | 1 | | | | | 216 | 579 |
| 27 | | | | 3 | 3 | 8 | 19 | 34 | 45 | 53 | 40 | 34 | 29 | 13 | 7 | 2 | | | | | 290 | 869 |
| 26 | | | | | 1 | 13 | 19 | 48 | 52 | 56 | 67 | 36 | 36 | 20 | 11 | | | | | | 359 | 1.228 |
| 25 | | | | 4 | 3 | 23 | 31 | 55 | 78 | 96 | 87 | 62 | 29 | 29 | 7 | 1 | | | | | 505 | 1.733 |
| 24 | | | | 3 | 3 | 21 | 53 | 69 | 97 | 114 | 101 | 76 | 53 | 29 | 9 | 1 | | | | | 629 | 2.362 |
| 23 | | | | 1 | 5 | 33 | 65 | 81 | 131 | 129 | 121 | 112 | 62 | 38 | 9 | | | | | | 787 | 3.149 |
| 22 | | | | 1 | 5 | 29 | 70 | 118 | 152 | 165 | 148 | 113 | 79 | 33 | 7 | | | | | | 920 | 4.069 |
| 21 | | | | 3 | 15 | 42 | 65 | 155 | 201 | 194 | 187 | 151 | 89 | 41 | 5 | | | | | | 1.148 | 5.217 |
| 20 | | | | 11 | 21 | 51 | 107 | 228 | 301 | 265 | 220 | 175 | 123 | 40 | 8 | | | | | | 1.550 | 6.767 |
| 19 | | 1 | 2 | 7 | 33 | 53 | 153 | 309 | 343 | 317 | 271 | 213 | 139 | 45 | 3 | | | | | | 1.889 | 8.656 |
| 18 | | 1 | 2 | 14 | 51 | 89 | 191 | 403 | 463 | 397 | 336 | 265 | 157 | 15 | | | | | | | 2.384 | 11.040 |
| 17 | | | 3 | 21 | 41 | 123 | 226 | 458 | 559 | 516 | 484 | 355 | 62 | | | | | | | | 2.848 | 13.888 |
| 16 | | 1 | 6 | 21 | 72 | 139 | 329 | 569 | 634 | 665 | 689 | 197 | 1 | | | | | | | | 3.323 | 17.211 |
| 15 | | 1 | 9 | 35 | 87 | 214 | 353 | 655 | 802 | 893 | 523 | 20 | | | | | | | | | 3.592 | 20.803 |
| 14 | | | 9 | 35 | 129 | 250 | 444 | 774 | 1038 | 1103 | 117 | | | | | | | | | | 3.899 | 24.702 |
| 13 | | | 5 | 51 | 138 | 294 | 565 | 1023 | 1529 | 575 | | | | | | | | | | | 4.180 | 28.882 |
| 12 | | | 13 | 74 | 186 | 375 | 711 | 1273 | 1462 | 38 | | | | | | | | | | | 4.132 | 33.014 |
| 11 | | | 22 | 83 | 227 | 481 | 987 | 1889 | 401 | | | | | | | | | | | | 4.090 | 37.104 |
| 10 | | 3 | 19 | 112 | 308 | 713 | 1331 | 1489 | 15 | | | | | | | | | | | | 3.990 | 41.094 |
| 9 | | 5 | 35 | 167 | 407 | 985 | 1879 | 403 | | | | | | | | | | | | | 3.881 | 44.975 |
| 8 | | 5 | 53 | 201 | 605 | 1450 | 1626 | 8 | | | | | | | | | | | | | 3.948 | 48.923 |
| 7 | | 2 | 70 | 282 | 907 | 2165 | 687 | | | | | | | | | | | | | | 4.113 | 53.036 |
| 6 | | 3 | 76 | 330 | 1428 | 2521 | 42 | | | | | | | | | | | | | | 4.400 | 57.436 |
| 5 | | 12 | 90 | 489 | 2170 | 1509 | | | | | | | | | | | | | | | 4.270 | 61.706 |
| 4 | | 19 | 155 | 617 | 2934 | 363 | | | | | | | | | | | | | | | 4.088 | 65.794 |
| 3 | 1 | 10 | 185 | 922 | 2567 | 7 | | | | | | | | | | | | | | | 3.692 | 69.486 |
| 2 | | 12 | 219 | 1418 | 1835 | | | | | | | | | | | | | | | | 3.484 | 72.970 |
| 1 | | 17 | 309 | 2203 | 527 | | | | | | | | | | | | | | | | 3.056 | 76.026 |
| 0 | | 27 | 409 | 2553 | 29 | | | | | | | | | | | | | | | | 3.018 | 79.044 |
| -0 | 1 | 33 | 600 | 1450 | | | | | | | | | | | | | | | | | 2.084 | 81.128 |
| -1 | 1 | 47 | 949 | 762 | | | | | | | | | | | | | | | | | 1.759 | 82.887 |
| -2 | 1 | 58 | 1001 | 181 | | | | | | | | | | | | | | | | | 1.241 | 84.128 |
| -3 | 1 | 88 | 865 | 2 | | | | | | | | | | | | | | | | | 956 | 85.084 |
| -4 | 4 | 99 | 649 | | | | | | | | | | | | | | | | | | 752 | 85.836 |
| -5 | 2 | 149 | 427 | | | | | | | | | | | | | | | | | | 578 | 86.414 |
| -6 | 1 | 224 | 230 | | | | | | | | | | | | | | | | | | 455 | 86.869 |
| -7 | 1 | 223 | 56 | | | | | | | | | | | | | | | | | | 280 | 87.149 |
| -8 | 2 | 190 | 2 | | | | | | | | | | | | | | | | | | 194 | 87.343 |
| -9 | 3 | 105 | | | | | | | | | | | | | | | | | | | 108 | 87.451 |
| -10 | 9 | 75 | | | | | | | | | | | | | | | | | | | 84 | 87.535 |
| -11 | 5 | 48 | | | | | | | | | | | | | | | | | | | 53 | 87.588 |
| -12 | 1 | 31 | | | | | | | | | | | | | | | | | | | 32 | 87.620 |
| -13 | | 24 | | | | | | | | | | | | | | | | | | | 24 | 87.644 |
| -14 | | 13 | | | | | | | | | | | | | | | | | | | 13 | 87.657 |
| -15 | 1 | 3 | | | | | | | | | | | | | | | | | | | 4 | 87.661 |
| -16 | 2 | | | | | | | | | | | | | | | | | | | | 2 | 87.663 |
| -17 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.666 |
| -18 | 2 | | | | | | | | | | | | | | | | | | | | 2 | 87.668 |
| -19 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.669 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.669 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.669 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.669 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.669 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.669 |

Summe

| 42 | 1.529 | 6.470 | 12.056 | 14.748 | 12.009 | 9.992 | 10.110 | 8.409 | 5.665 | 3.450 | 1.869 | 904 | 330 | 79 | 7 | 0 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 42 | 1.571 | 8.041 | 20.097 | 34.845 | 46.854 | 56.846 | 66.956 | 75.365 | 81.030 | 84.480 | 86.349 | 87.253 | 87.583 | 87.662 | 87.669 | 87.669 | 87.669 | 87.669 | 87.669 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 0 | 2 | 7 | 22 | 52 | 107 | 217 | 421 | 692 | 1.120 | 1.780 | 2.693 | 3.823 | 5.494 | 7.404 | 10.088 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 4.717 | 8.802 | 13.987 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 1.781 | 834 | 342 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.628 |
| 17 | 2.991 |
| 15 | 2.404 |
| 10 | 1.222 |

# Tabelle A4. 24-Stundenwerte für Potsdam / Table A4. 24-hour values for Potsdam

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.4 - Potsdam; Zeitraum 1991 bis 2005; *p* = 1004 hPa**
**Tabelle 3.4.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | 1 | 1 | | | | | | | | | | | | 2 | 2 |
| 37 | | | | | 1 | | 1 | | | 1 | | | | | | | | | | | 3 | 5 |
| 36 | | | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | | | | | 6 | 11 |
| 35 | | | | | | | 1 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | | | | | | | 11 | 22 |
| 34 | | | | | | | 3 | 1 | 5 | 7 | 1 | 4 | 2 | 2 | 1 | | | | | 1 | 27 | 49 |
| 33 | | | | | | | 2 | 7 | 2 | 5 | 7 | 4 | 2 | 1 | 1 | | | | | | 31 | 80 |
| 32 | | | | | | 2 | 11 | 9 | 9 | 15 | 13 | 14 | 5 | 3 | 1 | 1 | | | | | 83 | 163 |
| 31 | | | | | | 1 | 13 | 13 | 25 | 16 | 15 | 22 | 4 | 10 | 5 | 1 | | | | | 125 | 288 |
| 30 | | | | | 2 | 11 | 15 | 22 | 32 | 35 | 23 | 23 | 15 | 9 | 6 | | | | | | 193 | 481 |
| 29 | | | | | | 11 | 27 | 43 | 37 | 42 | 40 | 30 | 21 | 17 | 3 | 1 | | | | | 272 | 753 |
| 28 | | | | | 3 | 22 | 35 | 50 | 63 | 62 | 46 | 33 | 28 | 18 | 7 | 1 | | | | | 368 | 1.121 |
| 27 | | | | 1 | 11 | 21 | 41 | 67 | 73 | 65 | 73 | 53 | 37 | 20 | 11 | 5 | | | | | 478 | 1.599 |
| 26 | | | | | 13 | 29 | 58 | 79 | 102 | 81 | 81 | 59 | 40 | 32 | 17 | 1 | | | | | 592 | 2.191 |
| 25 | | | | 1 | 14 | 35 | 67 | 88 | 113 | 130 | 107 | 66 | 49 | 35 | 11 | 3 | 1 | | | | 720 | 2.911 |
| 24 | | | | 5 | 27 | 38 | 91 | 99 | 129 | 141 | 127 | 100 | 61 | 43 | 16 | 5 | | 1 | | | 883 | 3.794 |
| 23 | | | | 3 | 15 | 45 | 91 | 143 | 159 | 173 | 157 | 106 | 76 | 45 | 11 | 2 | 1 | | | | 1.027 | 4.821 |
| 22 | | | | 3 | 19 | 53 | 94 | 173 | 186 | 201 | 153 | 145 | 87 | 59 | 22 | 4 | 1 | | | | 1.200 | 6.021 |
| 21 | | | 3 | 13 | 32 | 63 | 107 | 239 | 251 | 223 | 213 | 163 | 104 | 39 | 16 | 7 | 1 | | | | 1.474 | 7.495 |
| 20 | | | 5 | 14 | 41 | 73 | 148 | 245 | 325 | 273 | 248 | 189 | 132 | 68 | 34 | 7 | | | | | 1.802 | 9.297 |
| 19 | | | 3 | 17 | 58 | 86 | 187 | 281 | 355 | 329 | 273 | 219 | 135 | 92 | 25 | | | | | | 2.060 | 11.357 |
| 18 | | 1 | 4 | 25 | 53 | 109 | 217 | 341 | 443 | 398 | 331 | 257 | 194 | 105 | | | | | | | 2.478 | 13.835 |
| 17 | | | 2 | 33 | 77 | 143 | 267 | 410 | 522 | 433 | 351 | 289 | 303 | | | | | | | | 2.830 | 16.665 |
| 16 | | | 13 | 42 | 69 | 181 | 303 | 460 | 581 | 478 | 438 | 501 | 37 | | | | | | | | 3.103 | 19.768 |
| 15 | | 1 | 13 | 55 | 89 | 204 | 332 | 564 | 707 | 550 | 725 | 219 | | | | | | | | | 3.459 | 23.227 |
| 14 | | 1 | 7 | 55 | 99 | 226 | 366 | 669 | 758 | 718 | 643 | | | | | | | | | | 3.542 | 26.769 |
| 13 | | 1 | 15 | 68 | 129 | 281 | 491 | 769 | 853 | 1056 | 25 | | | | | | | | | | 3.688 | 30.457 |
| 12 | | 1 | 24 | 87 | 166 | 314 | 612 | 927 | 1321 | 361 | | | | | | | | | | | 3.813 | 34.270 |
| 11 | | 3 | 29 | 99 | 197 | 399 | 739 | 1047 | 1157 | | | | | | | | | | | | 3.670 | 37.940 |
| 10 | 1 | 3 | 29 | 123 | 260 | 539 | 828 | 1506 | 214 | | | | | | | | | | | | 3.503 | 41.443 |
| 9 | | 1 | 43 | 169 | 365 | 737 | 1035 | 1021 | | | | | | | | | | | | | 3.371 | 44.814 |
| 8 | | 6 | 50 | 208 | 465 | 965 | 1441 | 171 | | | | | | | | | | | | | 3.306 | 48.120 |
| 7 | | 10 | 71 | 221 | 697 | 1281 | 1170 | | | | | | | | | | | | | | 3.450 | 51.570 |
| 6 | | 8 | 88 | 268 | 954 | 1859 | 333 | | | | | | | | | | | | | | 3.510 | 55.080 |
| 5 | | 11 | 105 | 403 | 1316 | 1789 | | | | | | | | | | | | | | | 3.624 | 58.704 |
| 4 | | 8 | 143 | 587 | 1827 | 1004 | | | | | | | | | | | | | | | 3.569 | 62.273 |
| 3 | | 14 | 166 | 825 | 2561 | 17 | | | | | | | | | | | | | | | 3.583 | 65.856 |
| 2 | | 17 | 175 | 1154 | 2223 | | | | | | | | | | | | | | | | 3.569 | 69.425 |
| 1 | | 19 | 225 | 1872 | 1243 | | | | | | | | | | | | | | | | 3.359 | 72.784 |
| 0 | | 23 | 301 | 3271 | 86 | | | | | | | | | | | | | | | | 3.681 | 76.465 |
| -0 | | 21 | 454 | 2204 | | | | | | | | | | | | | | | | | 2.679 | 79.144 |
| -1 | | 36 | 700 | 1377 | | | | | | | | | | | | | | | | | 2.113 | 81.257 |
| -2 | | 39 | 1027 | 547 | | | | | | | | | | | | | | | | | 1.613 | 82.870 |
| -3 | 3 | 72 | 1089 | 15 | | | | | | | | | | | | | | | | | 1.179 | 84.049 |
| -4 | 2 | 99 | 798 | | | | | | | | | | | | | | | | | | 899 | 84.948 |
| -5 | 1 | 122 | 600 | | | | | | | | | | | | | | | | | | 723 | 85.671 |
| -6 | 2 | 175 | 363 | | | | | | | | | | | | | | | | | | 540 | 86.211 |
| -7 | 1 | 295 | 109 | | | | | | | | | | | | | | | | | | 405 | 86.616 |
| -8 | 3 | 281 | | | | | | | | | | | | | | | | | | | 284 | 86.900 |
| -9 | 1 | 250 | | | | | | | | | | | | | | | | | | | 251 | 87.151 |
| -10 | 5 | 156 | | | | | | | | | | | | | | | | | | | 161 | 87.312 |
| -11 | 6 | 125 | | | | | | | | | | | | | | | | | | | 131 | 87.443 |
| -12 | 2 | 72 | | | | | | | | | | | | | | | | | | | 74 | 87.517 |
| -13 | 4 | 58 | | | | | | | | | | | | | | | | | | | 62 | 87.579 |
| -14 | 1 | 35 | | | | | | | | | | | | | | | | | | | 36 | 87.615 |
| -15 | 10 | 12 | | | | | | | | | | | | | | | | | | | 22 | 87.637 |
| -16 | 10 | | | | | | | | | | | | | | | | | | | | 10 | 87.647 |
| -17 | 13 | | | | | | | | | | | | | | | | | | | | 13 | 87.660 |
| -18 | 2 | | | | | | | | | | | | | | | | | | | | 2 | 87.662 |
| -19 | | | | | | | | | | | | | | | | | | | | | 0 | 87.662 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.662 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.662 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.662 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.662 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.662 |

| Summe | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67 | 1.976 | 6.654 | 13.765 | 13.112 | 10.539 | 9.127 | 9.449 | 8.427 | 5.795 | 4.091 | 2.497 | 1.333 | 599 | 187 | 38 | 4 | 1 | 0 | 1 |
| Summenhäufigkeit | | | | | | | | | | | | | | | | | | | |
| 67 | 2.043 | 8.697 | 22.462 | 35.574 | 46.113 | 55.240 | 64.689 | 73.116 | 78.911 | 83.002 | 85.499 | 86.832 | 87.431 | 87.618 | 87.656 | 87.660 | 87.661 | 87.661 | 87.662 |

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

| Enthalpie (kJ/kg tr.L.) | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
| Summenhäufigkeit | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | 1 | 3 | 6 | 18 | 50 | 116 | 228 | 434 | 750 | 1.231 | 1.840 | 2.769 | 3.890 | 5.503 | 7.384 | 9.663 | 12.750 |

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 5.106 | 9.190 | 14.258 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.396 | 1.231 | 561 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.696 |
| 17 | 3.081 |
| 15 | 2.516 |
| 10 | 1.364 |

# Tabelle A5. 24-Stundenwerte für Essen / Table A5. 24-hour values for Essen

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.5 - Essen; Zeitraum 1991 bis 2005; *p* = 997 hPa**
**Tabelle 3.5.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | 1 | | | | | | | | | | | 1 | 1 |
| 35 | | | | | | | | 1 | 1 | 2 | | | | | | | | | | | 4 | 5 |
| 34 | | | | | | | | | 5 | 3 | 1 | 1 | | | | | | | | | 10 | 15 |
| 33 | | | | | | 2 | | 1 | 3 | 1 | 3 | 1 | | | 1 | | | | | | 12 | 27 |
| 32 | | | | | | 2 | | 3 | 6 | 11 | 5 | 4 | 3 | 1 | 2 | 1 | | | | | 38 | 65 |
| 31 | | | | | | 3 | 2 | 6 | 11 | 11 | 11 | 9 | 7 | 3 | 1 | | 1 | | | | 65 | 130 |
| 30 | | | | | | 3 | 5 | 9 | 23 | 17 | 12 | 11 | 13 | 6 | 3 | 2 | 1 | | | | 105 | 235 |
| 29 | | | | | | 5 | 5 | 17 | 25 | 32 | 29 | 20 | 18 | 17 | 9 | 3 | | | | | 180 | 415 |
| 28 | | | | | | 3 | 11 | 27 | 28 | 35 | 49 | 32 | 21 | 12 | 10 | 1 | 1 | | | | 230 | 645 |
| 27 | | | | | | 3 | 17 | 28 | 50 | 66 | 57 | 49 | 34 | 17 | 7 | 1 | 1 | | | | 330 | 975 |
| 26 | | | | | | 2 | 15 | 38 | 75 | 87 | 77 | 75 | 40 | 23 | 7 | 1 | | | | | 440 | 1.415 |
| 25 | | | | | 1 | 13 | 33 | 53 | 79 | 103 | 112 | 101 | 53 | 27 | 8 | 3 | | | | | 586 | 2.001 |
| 24 | | | | 2 | 5 | 21 | 39 | 58 | 109 | 127 | 120 | 116 | 79 | 25 | 7 | 5 | | | | 1 | 714 | 2.715 |
| 23 | | | | 1 | 11 | 26 | 59 | 96 | 145 | 185 | 139 | 141 | 71 | 29 | 9 | 4 | 1 | 1 | 1 | | 919 | 3.634 |
| 22 | | | | 2 | 9 | 31 | 76 | 115 | 185 | 227 | 208 | 154 | 81 | 36 | 11 | 5 | 3 | | | | 1.143 | 4.777 |
| 21 | | | | 5 | 15 | 48 | 109 | 172 | 267 | 277 | 226 | 177 | 75 | 37 | 14 | 4 | | | | | 1.426 | 6.203 |
| 20 | | | 1 | 7 | 25 | 46 | 143 | 251 | 332 | 311 | 273 | 199 | 97 | 47 | 13 | 2 | | | | | 1.747 | 7.950 |
| 19 | | | | 13 | 27 | 57 | 176 | 357 | 374 | 373 | 297 | 239 | 130 | 61 | 5 | | | | | | 2.109 | 10.059 |
| 18 | | | 1 | 11 | 33 | 99 | 233 | 414 | 448 | 471 | 397 | 271 | 221 | 37 | | | | | | | 2.636 | 12.695 |
| 17 | | | 4 | 13 | 49 | 167 | 303 | 449 | 523 | 557 | 431 | 350 | 159 | 5 | | | | | | | 3.010 | 15.705 |
| 16 | | 1 | 3 | 25 | 71 | 188 | 326 | 572 | 660 | 591 | 557 | 395 | 19 | | | | | | | | 3.408 | 19.113 |
| 15 | | 2 | 2 | 23 | 91 | 255 | 411 | 701 | 760 | 729 | 721 | 72 | | | | | | | | | 3.767 | 22.880 |
| 14 | | 1 | 5 | 38 | 127 | 290 | 501 | 851 | 913 | 1047 | 291 | | | | | | | | | | 4.064 | 26.944 |
| 13 | | 2 | 10 | 45 | 167 | 355 | 631 | 1045 | 1212 | 897 | 6 | | | | | | | | | | 4.370 | 31.314 |
| 12 | | 3 | 10 | 68 | 249 | 429 | 813 | 1245 | 1589 | 127 | | | | | | | | | | | 4.533 | 35.847 |
| 11 | | 3 | 14 | 101 | 308 | 532 | 1039 | 1622 | 781 | | | | | | | | | | | | 4.400 | 40.247 |
| 10 | | 3 | 35 | 125 | 358 | 796 | 1481 | 1623 | 69 | | | | | | | | | | | | 4.490 | 44.737 |
| 9 | | 4 | 33 | 167 | 471 | 1117 | 1721 | 829 | | | | | | | | | | | | | 4.342 | 49.079 |
| 8 | | 3 | 56 | 219 | 702 | 1491 | 1747 | 39 | | | | | | | | | | | | | 4.257 | 53.336 |
| 7 | | 7 | 68 | 285 | 972 | 1997 | 1007 | | | | | | | | | | | | | | 4.336 | 57.672 |
| 6 | | 9 | 79 | 347 | 1290 | 2344 | 106 | | | | | | | | | | | | | | 4.175 | 61.847 |
| 5 | | 12 | 93 | 496 | 1831 | 1707 | | | | | | | | | | | | | | | 4.139 | 65.986 |
| 4 | | 18 | 138 | 686 | 2390 | 725 | | | | | | | | | | | | | | | 3.957 | 69.943 |
| 3 | | 25 | 183 | 856 | 2165 | 22 | | | | | | | | | | | | | | | 3.251 | 73.194 |
| 2 | | 25 | 233 | 1127 | 1467 | | | | | | | | | | | | | | | | 2.852 | 76.046 |
| 1 | | 27 | 314 | 1654 | 749 | | | | | | | | | | | | | | | | 2.744 | 78.790 |
| 0 | 1 | 37 | 412 | 1924 | 53 | | | | | | | | | | | | | | | | 2.427 | 81.217 |
| -0 | | 77 | 495 | 1223 | | | | | | | | | | | | | | | | | 1.795 | 83.012 |
| -1 | 1 | 77 | 659 | 751 | | | | | | | | | | | | | | | | | 1.488 | 84.500 |
| -2 | | 94 | 649 | 226 | | | | | | | | | | | | | | | | | 969 | 85.469 |
| -3 | | 113 | 543 | 6 | | | | | | | | | | | | | | | | | 662 | 86.131 |
| -4 | | 122 | 358 | | | | | | | | | | | | | | | | | | 480 | 86.611 |
| -5 | | 151 | 169 | | | | | | | | | | | | | | | | | | 320 | 86.931 |
| -6 | | 175 | 64 | | | | | | | | | | | | | | | | | | 239 | 87.170 |
| -7 | | 129 | 7 | | | | | | | | | | | | | | | | | | 136 | 87.306 |
| -8 | | 102 | | | | | | | | | | | | | | | | | | | 102 | 87.408 |
| -9 | | 61 | | | | | | | | | | | | | | | | | | | 61 | 87.469 |
| -10 | | 33 | | | | | | | | | | | | | | | | | | | 33 | 87.502 |
| -11 | 1 | 17 | | | | | | | | | | | | | | | | | | | 18 | 87.520 |
| -12 | | 17 | | | | | | | | | | | | | | | | | | | 17 | 87.537 |
| -13 | | 10 | | | | | | | | | | | | | | | | | | | 10 | 87.547 |
| -14 | | 9 | | | | | | | | | | | | | | | | | | | 9 | 87.556 |
| -15 | 4 | 3 | | | | | | | | | | | | | | | | | | | 7 | 87.563 |
| -16 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.564 |
| -17 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |
| -18 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |
| -19 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.564 |

Summe

| 8 | 1.372 | 4.638 | 10.446 | 13.636 | 12.779 | 11.009 | 10.622 | 8.673 | 6.288 | 4.022 | 2.417 | 1.121 | 383 | 107 | 32 | 8 | 1 | 1 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 8 | 1.380 | 6.018 | 16.464 | 30.100 | 42.879 | 53.888 | 64.510 | 73.183 | 79.471 | 83.493 | 85.910 | 87.031 | 87.414 | 87.521 | 87.553 | 87.561 | 87.562 | 87.563 | 87.564 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 2 | 4 | 9 | 18 | 36 | 92 | 170 | 306 | 533 | 949 | 1.530 | 2.269 | 3.356 | 4.775 | 6.654 | 8.920 | 11.923 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 3.892 | 7.541 | 12.379 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.175 | 1.051 | 443 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.332 |
| 17 | 2.709 |
| 15 | 2.139 |
| 10 | 1.016 |

# Tabelle A6. 24-Stundenwerte für Bad Marienberg / Table A6. 24-hour values for Bad Marienberg

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.6 - Bad Marienberg; Zeitraum 1991 bis 2005; *p* = 951 hPa**
**Tabelle 3.6.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 34 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 33 | | | | | | | | | 3 | 1 | | | | | | | | | | | 4 | 4 |
| 32 | | | | | | | | | 4 | 1 | 2 | | | | | | | | | | 7 | 11 |
| 31 | | | | | | | | | 1 | 5 | 3 | 1 | 1 | 1 | 1 | | | | | | 13 | 24 |
| 30 | | | | | | | | | 2 | 9 | 5 | 4 | 3 | 2 | | | | | | | 25 | 49 |
| 29 | | | | | | | 1 | 4 | 7 | 6 | 14 | 8 | 3 | 3 | 1 | 1 | | | | | 48 | 97 |
| 28 | | | | | | | 3 | 4 | 9 | 12 | 20 | 15 | 6 | 4 | 1 | 1 | | | | | 75 | 172 |
| 27 | | | | | | | 2 | 9 | 17 | 31 | 29 | 18 | 16 | 7 | 2 | | | | | | 131 | 303 |
| 26 | | | | | | 1 | 7 | 15 | 25 | 51 | 46 | 37 | 19 | 7 | 1 | 1 | | | | | 210 | 513 |
| 25 | | | | | | 5 | 16 | 37 | 50 | 69 | 55 | 61 | 31 | 9 | 4 | 5 | 1 | | | | 343 | 856 |
| 24 | | | | | | 5 | 27 | 41 | 81 | 81 | 79 | 73 | 55 | 13 | 5 | 1 | | | | | 461 | 1.317 |
| 23 | | | | | | 8 | 31 | 67 | 93 | 121 | 127 | 89 | 51 | 21 | 3 | 1 | 1 | | | | 613 | 1.930 |
| 22 | | | | | 1 | 16 | 38 | 87 | 129 | 151 | 147 | 119 | 67 | 27 | 2 | 1 | 1 | | | | 786 | 2.716 |
| 21 | | | | 1 | 6 | 21 | 85 | 135 | 157 | 206 | 173 | 133 | 63 | 29 | 3 | 2 | | | | | 1.014 | 3.730 |
| 20 | | | | | 8 | 35 | 103 | 165 | 227 | 237 | 219 | 129 | 80 | 34 | 9 | 1 | | | | | 1.247 | 4.977 |
| 19 | | | | | 18 | 53 | 135 | 215 | 268 | 267 | 249 | 161 | 100 | 38 | 9 | | | | | | 1.513 | 6.490 |
| 18 | | | 1 | 2 | 13 | 77 | 179 | 283 | 298 | 330 | 231 | 165 | 112 | 35 | 3 | | | | | | 1.729 | 8.219 |
| 17 | | | 2 | 2 | 26 | 86 | 226 | 327 | 381 | 365 | 261 | 207 | 133 | 29 | | | | | | | 2.045 | 10.264 |
| 16 | | | 1 | 9 | 62 | 127 | 265 | 387 | 449 | 406 | 303 | 285 | 129 | | | | | | | | 2.423 | 12.687 |
| 15 | | | 1 | 13 | 85 | 184 | 362 | 455 | 485 | 452 | 466 | 357 | 8 | | | | | | | | 2.868 | 15.555 |
| 14 | | 1 | 2 | 14 | 79 | 231 | 386 | 513 | 564 | 539 | 741 | 121 | | | | | | | | | 3.191 | 18.746 |
| 13 | | | 4 | 41 | 133 | 297 | 475 | 607 | 645 | 904 | 386 | | | | | | | | | | 3.492 | 22.238 |
| 12 | | 1 | 11 | 42 | 177 | 345 | 529 | 661 | 929 | 1047 | | | | | | | | | | | 3.742 | 25.980 |
| 11 | | 2 | 10 | 84 | 195 | 389 | 587 | 825 | 1563 | 281 | | | | | | | | | | | 3.936 | 29.916 |
| 10 | | 1 | 13 | 94 | 267 | 421 | 697 | 1321 | 1267 | | | | | | | | | | | | 4.081 | 33.997 |
| 9 | | 1 | 23 | 123 | 320 | 535 | 949 | 2255 | 75 | | | | | | | | | | | | 4.281 | 38.278 |
| 8 | | 8 | 38 | 163 | 363 | 633 | 1451 | 1397 | | | | | | | | | | | | | 4.053 | 42.331 |
| 7 | | 12 | 41 | 203 | 440 | 753 | 2423 | 69 | | | | | | | | | | | | | 3.941 | 46.272 |
| 6 | | 14 | 57 | 237 | 525 | 1351 | 1837 | | | | | | | | | | | | | | 4.021 | 50.293 |
| 5 | 1 | 14 | 95 | 275 | 703 | 2375 | 284 | | | | | | | | | | | | | | 3.747 | 54.040 |
| 4 | 1 | 19 | 119 | 359 | 1012 | 2436 | | | | | | | | | | | | | | | 3.946 | 57.986 |
| 3 | 1 | 32 | 123 | 424 | 2060 | 1327 | | | | | | | | | | | | | | | 3.967 | 61.953 |
| 2 | 1 | 36 | 155 | 587 | 2888 | | | | | | | | | | | | | | | | 3.667 | 65.620 |
| 1 | 7 | 42 | 205 | 881 | 2680 | | | | | | | | | | | | | | | | 3.815 | 69.435 |
| 0 | 3 | 43 | 282 | 1881 | 1610 | | | | | | | | | | | | | | | | 3.819 | 73.254 |
| -0 | 1 | 59 | 310 | 2913 | | | | | | | | | | | | | | | | | 3.283 | 76.537 |
| -1 | 5 | 61 | 471 | 2436 | | | | | | | | | | | | | | | | | 2.973 | 79.510 |
| -2 | 13 | 69 | 623 | 1391 | | | | | | | | | | | | | | | | | 2.096 | 81.606 |
| -3 | 3 | 119 | 1074 | 443 | | | | | | | | | | | | | | | | | 1.639 | 83.245 |
| -4 | 1 | 126 | 1087 | | | | | | | | | | | | | | | | | | 1.214 | 84.459 |
| -5 | 1 | 143 | 798 | | | | | | | | | | | | | | | | | | 942 | 85.401 |
| -6 | 1 | 196 | 558 | | | | | | | | | | | | | | | | | | 755 | 86.156 |
| -7 | 7 | 245 | 267 | | | | | | | | | | | | | | | | | | 519 | 86.675 |
| -8 | 9 | 335 | 60 | | | | | | | | | | | | | | | | | | 404 | 87.079 |
| -9 | 4 | 220 | 1 | | | | | | | | | | | | | | | | | | 225 | 87.304 |
| -10 | 10 | 149 | | | | | | | | | | | | | | | | | | | 159 | 87.463 |
| -11 | 17 | 67 | | | | | | | | | | | | | | | | | | | 84 | 87.547 |
| -12 | 11 | 41 | | | | | | | | | | | | | | | | | | | 52 | 87.599 |
| -13 | 1 | 21 | | | | | | | | | | | | | | | | | | | 22 | 87.621 |
| -14 | 1 | 15 | | | | | | | | | | | | | | | | | | | 16 | 87.637 |
| -15 | 8 | 3 | | | | | | | | | | | | | | | | | | | 11 | 87.648 |
| -16 | 12 | 1 | | | | | | | | | | | | | | | | | | | 13 | 87.661 |
| -17 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |
| -18 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |
| -19 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.661 |

Summe

| 119 | 2.096 | 6.432 | 12.618 | 13.671 | 11.711 | 11.098 | 9.879 | 7.729 | 5.572 | 3.556 | 1.983 | 877 | 259 | 44 | 14 | 3 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 119 | 2.215 | 8.647 | 21.265 | 34.936 | 46.647 | 57.745 | 67.624 | 75.353 | 80.925 | 84.481 | 86.464 | 87.341 | 87.600 | 87.644 | 87.658 | 87.661 | 87.661 | 87.661 | 87.661 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 23 | 45 | 86 | 189 | 429 | 789 | 1.241 | 2.007 | 3.075 | 4.332 | 6.196 | 8.198 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 4.971 | 9.051 | 14.270 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 1.767 | 815 | 319 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 4.201 |
| 17 | 3.539 |
| 15 | 2.915 |
| 10 | 1.596 |

# Tabelle A7. 24-Stundenwerte für Kassel / Table A7. 24-hour values for Kassel

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.7 - Kassel; Zeitraum 1991 bis 2005; *p* = 988 hPa**
**Tabelle 3.7.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | 1 | | | | | | | | | | | | | 1 | 1 |
| 35 | | | | | | | | 6 | | | 1 | | 1 | | | | | | | | 8 | 9 |
| 34 | | | | | | | 1 | 5 | 2 | | | | 1 | | 1 | | | | | | 10 | 19 |
| 33 | | | | | | | 2 | 1 | 2 | 3 | 1 | 2 | 1 | 1 | 1 | | | | | | 14 | 33 |
| 32 | | | | | | | 3 | 5 | 5 | 11 | 4 | 2 | 5 | 3 | 1 | 1 | | | | | 40 | 73 |
| 31 | | | | | | | 5 | 13 | 8 | 13 | 12 | 9 | 5 | 1 | 1 | 1 | | | | | 68 | 141 |
| 30 | | | | | | | 5 | 13 | 21 | 19 | 17 | 16 | 9 | 3 | 1 | 1 | 1 | 1 | | | 107 | 248 |
| 29 | | | | | | | 9 | 21 | 28 | 27 | 33 | 28 | 19 | 7 | 3 | 1 | | | | | 176 | 424 |
| 28 | | | | | | 2 | 11 | 29 | 44 | 49 | 36 | 35 | 27 | 9 | 5 | 3 | 1 | | | | 251 | 675 |
| 27 | | | | | 1 | 6 | 18 | 47 | 53 | 65 | 56 | 43 | 36 | 17 | 1 | 2 | | | 1 | | 346 | 1.021 |
| 26 | | | | | 3 | 15 | 25 | 43 | 83 | 96 | 69 | 55 | 51 | 11 | 7 | 3 | 1 | | | | 462 | 1.483 |
| 25 | | | | 2 | 3 | 25 | 43 | 65 | 92 | 102 | 101 | 68 | 62 | 23 | 7 | 3 | | | | | 596 | 2.079 |
| 24 | | | | 1 | 6 | 35 | 63 | 96 | 103 | 143 | 106 | 79 | 64 | 24 | 9 | 2 | 1 | | | | 732 | 2.811 |
| 23 | | | | 1 | 6 | 43 | 77 | 115 | 138 | 159 | 141 | 103 | 75 | 28 | 10 | 5 | 1 | | 3 | | 905 | 3.716 |
| 22 | | | | 1 | 12 | 45 | 106 | 163 | 185 | 179 | 148 | 126 | 85 | 35 | 13 | 2 | 5 | 3 | | | 1.108 | 4.824 |
| 21 | | | | 1 | 13 | 62 | 113 | 207 | 239 | 215 | 193 | 143 | 89 | 36 | 13 | 4 | 5 | | | | 1.333 | 6.157 |
| 20 | | | | 4 | 24 | 87 | 172 | 230 | 261 | 247 | 232 | 156 | 120 | 43 | 13 | 7 | | | | | 1.596 | 7.753 |
| 19 | | | 3 | 8 | 37 | 96 | 208 | 273 | 325 | 309 | 263 | 171 | 147 | 56 | 14 | | | | | | 1.910 | 9.663 |
| 18 | | | 5 | 10 | 51 | 117 | 244 | 306 | 365 | 359 | 325 | 281 | 163 | 63 | 1 | | | | | | 2.290 | 11.953 |
| 17 | | | 4 | 14 | 63 | 151 | 271 | 382 | 374 | 415 | 378 | 335 | 186 | 12 | | | | | | | 2.585 | 14.538 |
| 16 | | | 6 | 25 | 91 | 202 | 357 | 433 | 524 | 473 | 567 | 395 | 63 | | | | | | | | 3.136 | 17.674 |
| 15 | | | 4 | 37 | 125 | 240 | 394 | 545 | 566 | 629 | 734 | 144 | | | | | | | | | 3.418 | 21.092 |
| 14 | | 1 | 8 | 52 | 134 | 251 | 422 | 593 | 745 | 911 | 485 | | | | | | | | | | 3.602 | 24.694 |
| 13 | | 1 | 9 | 69 | 158 | 280 | 538 | 741 | 1021 | 975 | 39 | | | | | | | | | | 3.831 | 28.525 |
| 12 | | 1 | 15 | 97 | 215 | 356 | 608 | 961 | 1446 | 325 | | | | | | | | | | | 4.024 | 32.549 |
| 11 | | 1 | 17 | 123 | 224 | 455 | 733 | 1254 | 973 | | | | | | | | | | | | 3.780 | 36.329 |
| 10 | | 4 | 43 | 118 | 316 | 550 | 1027 | 1762 | 166 | | | | | | | | | | | | 3.986 | 40.315 |
| 9 | 1 | 3 | 51 | 163 | 351 | 707 | 1586 | 1057 | | | | | | | | | | | | | 3.919 | 44.234 |
| 8 | | 4 | 51 | 204 | 493 | 1056 | 1825 | 219 | | | | | | | | | | | | | 3.852 | 48.086 |
| 7 | | 11 | 77 | 271 | 663 | 1559 | 1340 | | | | | | | | | | | | | | 3.921 | 52.007 |
| 6 | | 8 | 94 | 371 | 891 | 2134 | 379 | | | | | | | | | | | | | | 3.877 | 55.884 |
| 5 | | 11 | 99 | 462 | 1367 | 1927 | | | | | | | | | | | | | | | 3.866 | 59.750 |
| 4 | | 9 | 131 | 613 | 1977 | 1001 | | | | | | | | | | | | | | | 3.731 | 63.481 |
| 3 | | 13 | 156 | 917 | 2596 | 112 | | | | | | | | | | | | | | | 3.794 | 67.275 |
| 2 | | 17 | 213 | 1296 | 2180 | | | | | | | | | | | | | | | | 3.706 | 70.981 |
| 1 | | 14 | 275 | 1970 | 1156 | | | | | | | | | | | | | | | | 3.415 | 74.396 |
| 0 | | 31 | 391 | 2675 | 223 | | | | | | | | | | | | | | | | 3.320 | 77.716 |
| -0 | | 35 | 500 | 1699 | | | | | | | | | | | | | | | | | 2.234 | 79.950 |
| -1 | | 63 | 775 | 1031 | | | | | | | | | | | | | | | | | 1.869 | 81.819 |
| -2 | | 59 | 1001 | 403 | | | | | | | | | | | | | | | | | 1.463 | 83.282 |
| -3 | | 100 | 967 | 47 | | | | | | | | | | | | | | | | | 1.114 | 84.396 |
| -4 | | 110 | 701 | | | | | | | | | | | | | | | | | | 811 | 85.207 |
| -5 | | 131 | 491 | | | | | | | | | | | | | | | | | | 622 | 85.829 |
| -6 | | 180 | 325 | | | | | | | | | | | | | | | | | | 505 | 86.334 |
| -7 | 2 | 237 | 110 | | | | | | | | | | | | | | | | | | 349 | 86.683 |
| -8 | 2 | 247 | 13 | | | | | | | | | | | | | | | | | | 262 | 86.945 |
| -9 | 3 | 216 | | | | | | | | | | | | | | | | | | | 219 | 87.164 |
| -10 | 2 | 125 | | | | | | | | | | | | | | | | | | | 127 | 87.291 |
| -11 | 7 | 66 | | | | | | | | | | | | | | | | | | | 73 | 87.364 |
| -12 | 3 | 48 | | | | | | | | | | | | | | | | | | | 51 | 87.415 |
| -13 | 5 | 17 | | | | | | | | | | | | | | | | | | | 22 | 87.437 |
| -14 | 3 | 16 | | | | | | | | | | | | | | | | | | | 19 | 87.456 |
| -15 | | 6 | | | | | | | | | | | | | | | | | | | 6 | 87.462 |
| -16 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.465 |
| -17 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.468 |
| -18 | 2 | | | | | | | | | | | | | | | | | | | | 2 | 87.470 |
| -19 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.471 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.471 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.471 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.471 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.471 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.471 |

Summe

| 37 | 1.785 | 6.535 | 12.685 | 13.379 | 11.514 | 10.585 | 9.586 | 7.769 | 5.724 | 3.941 | 2.191 | 1.209 | 372 | 101 | 35 | 15 | 4 | 4 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 37 | 1.822 | 8.357 | 21.042 | 34.421 | 45.935 | 56.520 | 66.106 | 73.875 | 79.599 | 83.540 | 85.731 | 86.940 | 87.312 | 87.413 | 87.448 | 87.463 | 87.467 | 87.471 | 87.471 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 2 | 5 | 12 | 20 | 39 | 72 | 143 | 279 | 526 | 925 | 1.431 | 2.182 | 3.204 | 4.481 | 6.278 | 8.442 | 11.192 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 4.847 | 8.865 | 13.987 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.112 | 1.039 | 449 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.695 |
| 17 | 3.067 |
| 15 | 2.486 |
| 10 | 1.300 |

# Tabelle A8. 24-Stundenwerte für Braunlage / Table A8. 24-hour values for Braunlage

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.8 - Braunlage; Zeitraum 1991 bis 2005; *p* = 944 hPa**
**Tabelle 3.8.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 34 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 33 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 32 | | | | | | | 1 | | 1 | 1 | | 1 | | | | | | | | | 4 | 4 |
| 31 | | | | | | | 1 | 4 | 1 | | 3 | | | | | | | | | | 9 | 13 |
| 30 | | | | | | 1 | 2 | 2 | 1 | 1 | 1 | 1 | | | | | | | | | 9 | 22 |
| 29 | | | | | | 1 | 5 | 2 | 3 | 6 | 1 | 1 | 1 | | 1 | | | | | | 21 | 43 |
| 28 | | | | | | 1 | 7 | 9 | 14 | 11 | 5 | 7 | 1 | 4 | 2 | | | | | | 61 | 104 |
| 27 | | | | | 2 | 7 | 6 | 9 | 15 | 16 | 19 | 9 | 5 | 3 | 1 | | | | | | 92 | 196 |
| 26 | | | | | 1 | 3 | 13 | 17 | 26 | 29 | 27 | 30 | 13 | 5 | 2 | 1 | | | | | 167 | 363 |
| 25 | | | | | 1 | 4 | 14 | 29 | 40 | 45 | 42 | 34 | 13 | 9 | 2 | 1 | | | | | 234 | 597 |
| 24 | | | | 1 | 3 | 9 | 18 | 51 | 70 | 60 | 48 | 38 | 27 | 12 | 3 | 1 | | | | | 341 | 938 |
| 23 | | | | 1 | 5 | 17 | 37 | 65 | 86 | 89 | 50 | 47 | 26 | 9 | 4 | 2 | | | | | 438 | 1.376 |
| 22 | | | | 2 | 5 | 31 | 45 | 73 | 107 | 119 | 97 | 62 | 41 | 11 | 4 | 1 | | | | | 598 | 1.974 |
| 21 | | | | 5 | 9 | 31 | 79 | 92 | 158 | 141 | 107 | 65 | 46 | 13 | 3 | | | | | | 749 | 2.723 |
| 20 | | | | 2 | 15 | 51 | 95 | 141 | 182 | 165 | 131 | 91 | 46 | 15 | 1 | 1 | | | | | 936 | 3.659 |
| 19 | | | 1 | 2 | 15 | 43 | 107 | 158 | 216 | 189 | 151 | 101 | 58 | 17 | 2 | | | | | | 1.060 | 4.719 |
| 18 | | | 1 | 2 | 19 | 70 | 105 | 218 | 253 | 236 | 170 | 128 | 65 | 9 | | | | | | | 1.276 | 5.995 |
| 17 | | | | 4 | 40 | 77 | 170 | 276 | 322 | 281 | 211 | 171 | 58 | 7 | | | | | | | 1.617 | 7.612 |
| 16 | | | 1 | 6 | 53 | 88 | 214 | 353 | 386 | 319 | 316 | 225 | 45 | | | | | | | | 2.006 | 9.618 |
| 15 | | | 1 | 21 | 54 | 141 | 314 | 382 | 450 | 396 | 439 | 219 | 3 | | | | | | | | 2.420 | 12.038 |
| 14 | | 2 | 8 | 21 | 83 | 172 | 351 | 522 | 515 | 594 | 539 | 32 | | | | | | | | | 2.839 | 14.877 |
| 13 | | 1 | 14 | 29 | 97 | 227 | 409 | 567 | 689 | 947 | 229 | | | | | | | | | | 3.209 | 18.086 |
| 12 | | 4 | 11 | 33 | 119 | 283 | 511 | 685 | 1045 | 771 | | | | | | | | | | | 3.462 | 21.548 |
| 11 | | 3 | 15 | 53 | 158 | 319 | 598 | 982 | 1501 | 114 | | | | | | | | | | | 3.743 | 25.291 |
| 10 | | 4 | 12 | 71 | 192 | 375 | 797 | 1707 | 681 | | | | | | | | | | | | 3.839 | 29.130 |
| 9 | | 7 | 22 | 79 | 228 | 464 | 1201 | 1995 | 27 | | | | | | | | | | | | 4.023 | 33.153 |
| 8 | | 2 | 37 | 153 | 288 | 581 | 2157 | 765 | | | | | | | | | | | | | 3.983 | 37.136 |
| 7 | | 5 | 44 | 156 | 399 | 941 | 2415 | 15 | | | | | | | | | | | | | 3.975 | 41.111 |
| 6 | 2 | 12 | 54 | 221 | 489 | 1923 | 1156 | | | | | | | | | | | | | | 3.857 | 44.968 |
| 5 | 3 | 13 | 80 | 241 | 762 | 2611 | 67 | | | | | | | | | | | | | | 3.777 | 48.745 |
| 4 | 1 | 17 | 103 | 299 | 1340 | 2003 | | | | | | | | | | | | | | | 3.763 | 52.508 |
| 3 | | 28 | 130 | 439 | 2649 | 596 | | | | | | | | | | | | | | | 3.842 | 56.350 |
| 2 | 1 | 22 | 149 | 665 | 3052 | | | | | | | | | | | | | | | | 3.889 | 60.239 |
| 1 | | 33 | 191 | 1213 | 2673 | | | | | | | | | | | | | | | | 4.110 | 64.349 |
| 0 | 9 | 42 | 283 | 3035 | 1367 | | | | | | | | | | | | | | | | 4.736 | 69.085 |
| -0 | 1 | 36 | 325 | 3352 | 17 | | | | | | | | | | | | | | | | 3.731 | 72.816 |
| -1 | 5 | 75 | 581 | 2752 | | | | | | | | | | | | | | | | | 3.413 | 76.229 |
| -2 | 7 | 85 | 970 | 1798 | | | | | | | | | | | | | | | | | 2.860 | 79.089 |
| -3 | 3 | 64 | 1516 | 360 | | | | | | | | | | | | | | | | | 1.943 | 81.032 |
| -4 | 4 | 71 | 1355 | 3 | | | | | | | | | | | | | | | | | 1.433 | 82.465 |
| -5 | 5 | 100 | 1045 | | | | | | | | | | | | | | | | | | 1.150 | 83.615 |
| -6 | 3 | 135 | 771 | | | | | | | | | | | | | | | | | | 909 | 84.524 |
| -7 | 11 | 288 | 450 | | | | | | | | | | | | | | | | | | 749 | 85.273 |
| -8 | 13 | 484 | 93 | | | | | | | | | | | | | | | | | | 590 | 85.863 |
| -9 | 8 | 392 | 1 | | | | | | | | | | | | | | | | | | 401 | 86.264 |
| -10 | 5 | 293 | | | | | | | | | | | | | | | | | | | 298 | 86.562 |
| -11 | 9 | 199 | | | | | | | | | | | | | | | | | | | 208 | 86.770 |
| -12 | 11 | 139 | | | | | | | | | | | | | | | | | | | 150 | 86.920 |
| -13 | 9 | 79 | | | | | | | | | | | | | | | | | | | 88 | 87.008 |
| -14 | 4 | 51 | | | | | | | | | | | | | | | | | | | 55 | 87.063 |
| -15 | 11 | 37 | | | | | | | | | | | | | | | | | | | 48 | 87.111 |
| -16 | 26 | 8 | | | | | | | | | | | | | | | | | | | 34 | 87.145 |
| -17 | 15 | | | | | | | | | | | | | | | | | | | | 15 | 87.160 |
| -18 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.163 |
| -19 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.164 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.164 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.164 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.164 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.164 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.164 |

Summe

| 170 | 2.731 | 8.264 | 15.019 | 14.135 | 11.070 | 10.895 | 9.119 | 6.789 | 4.530 | 2.586 | 1.262 | 448 | 114 | 25 | 7 | 0 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 170 | 2.901 | 11.165 | 26.184 | 40.319 | 51.389 | 62.284 | 71.403 | 78.192 | 82.722 | 85.308 | 86.570 | 87.018 | 87.132 | 87.157 | 87.164 | 87.164 | 87.164 | 87.164 | 87.164 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 22 | 47 | 104 | 213 | 399 | 662 | 1.067 | 1.718 | 2.642 | 4.029 | 5.726 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 6.058 | 10.643 | 16.327 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 1.156 | 486 | 171 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 4.590 |
| 17 | 3.914 |
| 15 | 3.269 |
| 10 | 1.871 |

# Tabelle A9. 24-Stundenwerte für Chemnitz / Table A9. 24-hour values for Chemnitz

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.9 - Chemnitz; Zeitraum 1991 bis 2005; *p* = 966 hPa**
**Tabelle 3.9.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 34 | | | | | | | | | | 1 | | 1 | | | | | | | | | 2 | 2 |
| 33 | | | | | | | | 1 | 1 | | 3 | 1 | | | | | | | | | 6 | 8 |
| 32 | | | | | | | | 7 | 5 | 4 | 6 | 5 | 2 | 1 | | | | | | | 30 | 38 |
| 31 | | | | | | | 3 | 7 | 7 | 13 | 7 | 3 | 2 | 2 | 2 | | | | | | 46 | 84 |
| 30 | | | | | | 3 | 4 | 9 | 9 | 15 | 13 | 7 | 10 | 8 | 2 | 1 | 1 | | | | 82 | 166 |
| 29 | | | 1 | 1 | | 2 | 12 | 12 | 15 | 18 | 22 | 15 | 17 | 5 | 1 | 3 | | | | | 124 | 290 |
| 28 | | | | | | 3 | 13 | 22 | 32 | 29 | 32 | 29 | 21 | 7 | 3 | 1 | 2 | | | | 194 | 484 |
| 27 | | | | | 3 | 2 | 21 | 26 | 41 | 45 | 53 | 39 | 28 | 11 | 5 | 1 | 1 | | | | 276 | 760 |
| 26 | | | | | 1 | 5 | 25 | 45 | 55 | 72 | 69 | 61 | 25 | 21 | 6 | 2 | 1 | | | | 388 | 1.148 |
| 25 | | | | | 2 | 11 | 31 | 65 | 93 | 105 | 90 | 75 | 49 | 25 | 8 | 1 | | | | | 555 | 1.703 |
| 24 | | | | | 5 | 19 | 55 | 60 | 121 | 132 | 113 | 103 | 51 | 19 | 9 | 3 | | 1 | | | 691 | 2.394 |
| 23 | | | | | 6 | 33 | 55 | 111 | 144 | 147 | 143 | 123 | 61 | 27 | 8 | 1 | | | | | 859 | 3.253 |
| 22 | | | | 1 | 9 | 47 | 73 | 145 | 187 | 197 | 207 | 144 | 76 | 23 | 7 | 1 | | | | | 1.117 | 4.370 |
| 21 | | | | 2 | 11 | 48 | 98 | 175 | 241 | 255 | 198 | 194 | 84 | 25 | 5 | 1 | | | | | 1.337 | 5.707 |
| 20 | | | | 4 | 21 | 41 | 123 | 177 | 301 | 276 | 265 | 197 | 81 | 23 | 10 | | | | | | 1.519 | 7.226 |
| 19 | | | | 7 | 27 | 42 | 180 | 308 | 328 | 307 | 318 | 209 | 86 | 35 | 7 | 1 | | | | | 1.855 | 9.081 |
| 18 | | | 1 | 9 | 36 | 68 | 211 | 377 | 381 | 395 | 361 | 229 | 122 | 36 | 7 | | | | | | 2.233 | 11.314 |
| 17 | | 1 | 2 | 12 | 42 | 101 | 270 | 417 | 475 | 469 | 405 | 295 | 158 | 14 | | | | | | | 2.661 | 13.975 |
| 16 | | 1 | 3 | 19 | 53 | 140 | 327 | 492 | 561 | 529 | 482 | 366 | 83 | | | | | | | | 3.056 | 17.031 |
| 15 | | 1 | 5 | 28 | 84 | 200 | 393 | 617 | 675 | 582 | 579 | 177 | | | | | | | | | 3.341 | 20.372 |
| 14 | | 1 | 6 | 31 | 121 | 253 | 470 | 717 | 764 | 693 | 401 | 9 | | | | | | | | | 3.466 | 23.838 |
| 13 | | 1 | 11 | 28 | 127 | 305 | 533 | 851 | 930 | 695 | 69 | | | | | | | | | | 3.550 | 27.388 |
| 12 | | 1 | 11 | 43 | 161 | 334 | 737 | 987 | 1109 | 299 | | | | | | | | | | | 3.682 | 31.070 |
| 11 | | 1 | 9 | 53 | 208 | 456 | 899 | 1140 | 855 | 6 | | | | | | | | | | | 3.627 | 34.697 |
| 10 | 1 | 2 | 22 | 95 | 310 | 626 | 1197 | 1363 | 204 | | | | | | | | | | | | 3.820 | 38.517 |
| 9 | | 4 | 21 | 137 | 427 | 807 | 1431 | 1033 | | | | | | | | | | | | | 3.860 | 42.377 |
| 8 | | 1 | 27 | 171 | 514 | 1270 | 1671 | 200 | | | | | | | | | | | | | 3.854 | 46.231 |
| 7 | | 7 | 43 | 254 | 780 | 1515 | 982 | | | | | | | | | | | | | | 3.581 | 49.812 |
| 6 | 1 | 7 | 59 | 299 | 1128 | 1709 | 329 | | | | | | | | | | | | | | 3.532 | 53.344 |
| 5 | | 6 | 85 | 393 | 1537 | 1389 | 15 | | | | | | | | | | | | | | 3.425 | 56.769 |
| 4 | | 9 | 121 | 587 | 1904 | 814 | | | | | | | | | | | | | | | 3.435 | 60.204 |
| 3 | | 13 | 155 | 993 | 2253 | 146 | | | | | | | | | | | | | | | 3.560 | 63.764 |
| 2 | | 18 | 201 | 1480 | 1905 | | | | | | | | | | | | | | | | 3.604 | 67.368 |
| 1 | 1 | 35 | 281 | 2107 | 1210 | | | | | | | | | | | | | | | | 3.634 | 71.002 |
| 0 | | 43 | 374 | 2771 | 337 | | | | | | | | | | | | | | | | 3.525 | 74.527 |
| -0 | 1 | 41 | 499 | 2283 | | | | | | | | | | | | | | | | | 2.824 | 77.351 |
| -1 | 2 | 63 | 807 | 1646 | | | | | | | | | | | | | | | | | 2.518 | 79.869 |
| -2 | | 73 | 1010 | 822 | | | | | | | | | | | | | | | | | 1.905 | 81.774 |
| -3 | | 85 | 1143 | 157 | | | | | | | | | | | | | | | | | 1.385 | 83.159 |
| -4 | 1 | 129 | 933 | | | | | | | | | | | | | | | | | | 1.063 | 84.222 |
| -5 | 1 | 167 | 718 | | | | | | | | | | | | | | | | | | 886 | 85.108 |
| -6 | 3 | 217 | 485 | | | | | | | | | | | | | | | | | | 705 | 85.813 |
| -7 | 7 | 318 | 211 | | | | | | | | | | | | | | | | | | 536 | 86.349 |
| -8 | 7 | 383 | 29 | | | | | | | | | | | | | | | | | | 419 | 86.768 |
| -9 | 8 | 276 | | | | | | | | | | | | | | | | | | | 284 | 87.052 |
| -10 | 1 | 200 | | | | | | | | | | | | | | | | | | | 201 | 87.253 |
| -11 | 1 | 115 | | | | | | | | | | | | | | | | | | | 116 | 87.369 |
| -12 | 9 | 100 | | | | | | | | | | | | | | | | | | | 109 | 87.478 |
| -13 | 5 | 64 | | | | | | | | | | | | | | | | | | | 69 | 87.547 |
| -14 | 5 | 39 | | | | | | | | | | | | | | | | | | | 44 | 87.591 |
| -15 | 3 | 23 | | | | | | | | | | | | | | | | | | | 26 | 87.617 |
| -16 | 9 | 3 | | | | | | | | | | | | | | | | | | | 12 | 87.629 |
| -17 | 4 | | | | | | | | | | | | | | | | | | | | 4 | 87.633 |
| -18 | 7 | | | | | | | | | | | | | | | | | | | | 7 | 87.640 |
| -19 | 2 | | | | | | | | | | | | | | | | | | | | 2 | 87.642 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.642 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.642 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.642 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.642 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.642 |

Summe

| 79 | 2.448 | 7.273 | 14.433 | 13.222 | 10.389 | 10.158 | 9.364 | 7.534 | 5.284 | 3.836 | 2.282 | 956 | 282 | 80 | 16 | 5 | 1 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 79 | 2.527 | 9.800 | 24.233 | 37.455 | 47.844 | 58.002 | 67.366 | 74.900 | 80.184 | 84.020 | 86.302 | 87.258 | 87.540 | 87.620 | 87.636 | 87.641 | 87.642 | 87.642 | 87.642 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 1 | 4 | 13 | 22 | 50 | 102 | 217 | 386 | 704 | 1.173 | 1.789 | 2.731 | 4.057 | 5.869 | 8.187 | 10.724 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 5.537 | 9.802 | 15.094 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 1.931 | 921 | 367 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.920 |
| 17 | 3.285 |
| 15 | 2.697 |
| 10 | 1.482 |

# Tabelle A10. 24-Stundenwerte für Hof / Table A10. 24-hour values for Hof

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.10 - Hof; Zeitraum 1991 bis 2005; *p* = 950 hPa**
**Tabelle 3.10.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | 1 | | | | | | | | | | | | | | 1 | 1 |
| 34 | | | | | | | 2 | 1 | | | | | | | | | | | | | 3 | 4 |
| 33 | | | | | | | | 1 | 2 | 1 | 1 | | | | | | | | | | 5 | 9 |
| 32 | | | | | | 1 | 1 | 2 | 1 | 3 | 2 | 1 | 1 | | | | | | | | 12 | 21 |
| 31 | | | | | | 3 | 9 | 6 | 3 | 3 | 7 | 7 | 1 | | 1 | | | | | | 40 | 61 |
| 30 | | | | | 1 | 3 | 7 | 9 | 13 | 15 | 7 | 10 | 8 | 2 | 1 | 1 | | | | | 77 | 138 |
| 29 | | | | | | 2 | 12 | 5 | 22 | 25 | 13 | 11 | 10 | 3 | 1 | 1 | | | | | 105 | 243 |
| 28 | | | | | | 4 | 16 | 19 | 27 | 34 | 25 | 13 | 6 | 3 | 1 | 1 | | | | | 149 | 392 |
| 27 | | | | | 2 | 6 | 25 | 29 | 41 | 57 | 39 | 27 | 11 | 4 | 1 | | | | | | 242 | 634 |
| 26 | | | | | 1 | 11 | 28 | 56 | 71 | 67 | 42 | 22 | 21 | 9 | 3 | 1 | 1 | | | | 333 | 967 |
| 25 | | | | | | 10 | 43 | 87 | 91 | 70 | 65 | 47 | 25 | 8 | 1 | 1 | | | | | 448 | 1.415 |
| 24 | | | | | 3 | 26 | 66 | 106 | 95 | 97 | 69 | 51 | 32 | 10 | 5 | 1 | | | | | 561 | 1.976 |
| 23 | | | | 1 | 4 | 29 | 90 | 117 | 141 | 121 | 88 | 69 | 44 | 13 | 5 | 3 | 1 | | | | 726 | 2.702 |
| 22 | | | | | 13 | 58 | 97 | 138 | 143 | 143 | 123 | 87 | 55 | 16 | 3 | 1 | 2 | | | | 879 | 3.581 |
| 21 | | | | 1 | 19 | 71 | 128 | 153 | 164 | 172 | 152 | 100 | 53 | 17 | 7 | 2 | | | | | 1.039 | 4.620 |
| 20 | | | | 2 | 23 | 77 | 144 | 185 | 194 | 206 | 177 | 109 | 69 | 27 | 4 | 2 | | | | | 1.219 | 5.839 |
| 19 | | | | 3 | 33 | 90 | 185 | 204 | 205 | 216 | 194 | 138 | 90 | 41 | 7 | 1 | | | | | 1.407 | 7.246 |
| 18 | | | | 10 | 45 | 96 | 205 | 259 | 273 | 242 | 230 | 178 | 125 | 47 | 4 | | | | | | 1.714 | 8.960 |
| 17 | | | | 13 | 52 | 146 | 247 | 271 | 292 | 296 | 276 | 258 | 155 | 27 | | | | | | | 2.033 | 10.993 |
| 16 | | | 9 | 15 | 89 | 140 | 241 | 311 | 377 | 335 | 364 | 449 | 144 | | | | | | | | 2.474 | 13.467 |
| 15 | | 1 | 3 | 24 | 128 | 190 | 297 | 351 | 418 | 441 | 570 | 423 | 6 | | | | | | | | 2.852 | 16.319 |
| 14 | | 1 | 11 | 39 | 129 | 243 | 348 | 442 | 469 | 617 | 726 | 128 | | | | | | | | | 3.153 | 19.472 |
| 13 | 1 | 3 | 16 | 40 | 165 | 243 | 383 | 545 | 624 | 1083 | 305 | | | | | | | | | | 3.408 | 22.880 |
| 12 | | 2 | 14 | 48 | 168 | 279 | 465 | 619 | 1007 | 897 | | | | | | | | | | | 3.499 | 26.379 |
| 11 | | 1 | 19 | 74 | 174 | 339 | 565 | 874 | 1364 | 215 | | | | | | | | | | | 3.625 | 30.004 |
| 10 | | 1 | 21 | 112 | 178 | 352 | 687 | 1453 | 863 | | | | | | | | | | | | 3.667 | 33.671 |
| 9 | | 1 | 32 | 119 | 231 | 441 | 927 | 1915 | 61 | | | | | | | | | | | | 3.727 | 37.398 |
| 8 | | 1 | 35 | 126 | 279 | 553 | 1539 | 978 | | | | | | | | | | | | | 3.511 | 40.909 |
| 7 | | 2 | 69 | 171 | 342 | 763 | 2194 | 77 | | | | | | | | | | | | | 3.618 | 44.527 |
| 6 | | 5 | 62 | 205 | 515 | 1405 | 1274 | | | | | | | | | | | | | | 3.466 | 47.993 |
| 5 | | 5 | 90 | 260 | 647 | 2330 | 240 | | | | | | | | | | | | | | 3.572 | 51.565 |
| 4 | | 11 | 95 | 304 | 1031 | 2069 | | | | | | | | | | | | | | | 3.510 | 55.075 |
| 3 | | 15 | 107 | 415 | 2018 | 947 | | | | | | | | | | | | | | | 3.502 | 58.577 |
| 2 | | 11 | 127 | 593 | 2755 | | | | | | | | | | | | | | | | 3.486 | 62.063 |
| 1 | | 16 | 177 | 1066 | 2456 | | | | | | | | | | | | | | | | 3.715 | 65.778 |
| 0 | 1 | 19 | 267 | 2421 | 1534 | | | | | | | | | | | | | | | | 4.242 | 70.020 |
| -0 | 1 | 35 | 292 | 2970 | | | | | | | | | | | | | | | | | 3.298 | 73.318 |
| -1 | 1 | 44 | 508 | 2641 | | | | | | | | | | | | | | | | | 3.194 | 76.512 |
| -2 | 1 | 49 | 776 | 1756 | | | | | | | | | | | | | | | | | 2.582 | 79.094 |
| -3 | 4 | 59 | 1279 | 591 | | | | | | | | | | | | | | | | | 1.933 | 81.027 |
| -4 | 2 | 81 | 1323 | | | | | | | | | | | | | | | | | | 1.406 | 82.433 |
| -5 | 5 | 111 | 1063 | | | | | | | | | | | | | | | | | | 1.179 | 83.612 |
| -6 | 3 | 131 | 921 | | | | | | | | | | | | | | | | | | 1.055 | 84.667 |
| -7 | 4 | 238 | 599 | | | | | | | | | | | | | | | | | | 841 | 85.508 |
| -8 | 1 | 408 | 196 | | | | | | | | | | | | | | | | | | 605 | 86.113 |
| -9 | 4 | 448 | 10 | | | | | | | | | | | | | | | | | | 462 | 86.575 |
| -10 | 12 | 308 | | | | | | | | | | | | | | | | | | | 320 | 86.895 |
| -11 | 9 | 234 | | | | | | | | | | | | | | | | | | | 243 | 87.138 |
| -12 | 8 | 153 | | | | | | | | | | | | | | | | | | | 161 | 87.299 |
| -13 | 8 | 108 | | | | | | | | | | | | | | | | | | | 116 | 87.415 |
| -14 | 9 | 82 | | | | | | | | | | | | | | | | | | | 91 | 87.506 |
| -15 | 11 | 62 | | | | | | | | | | | | | | | | | | | 73 | 87.579 |
| -16 | 25 | 16 | | | | | | | | | | | | | | | | | | | 41 | 87.620 |
| -17 | 21 | 1 | | | | | | | | | | | | | | | | | | | 22 | 87.642 |
| -18 | 12 | | | | | | | | | | | | | | | | | | | | 12 | 87.654 |
| -19 | 5 | | | | | | | | | | | | | | | | | | | | 5 | 87.659 |
| -20 | 5 | | | | | | | | | | | | | | | | | | | | 5 | 87.664 |
| -21 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.665 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.665 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.665 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.665 |

Summe

| 154 | 2.663 | 8.121 | 14.020 | 13.035 | 10.927 | 10.466 | 9.213 | 6.961 | 5.356 | 3.475 | 2.128 | 856 | 227 | 44 | 15 | 4 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 154 | 2.817 | 10.938 | 24.958 | 37.993 | 48.920 | 59.386 | 68.599 | 75.560 | 80.916 | 84.391 | 86.519 | 87.375 | 87.602 | 87.646 | 87.661 | 87.665 | 87.665 | 87.665 | 87.665 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 0 | 1 | 5 | 8 | 21 | 46 | 111 | 211 | 387 | 723 | 1.220 | 1.930 | 3.054 | 4.379 | 6.615 | 8.794 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 5.786 | 10.132 | 15.547 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 1.760 | 817 | 316 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 4.374 |
| 17 | 3.719 |
| 15 | 3.102 |
| 10 | 1.791 |

# Tabelle A11. 24-Stundenwerte für Fichtelberg / Table A11. 24-hour values for Fichtelberg

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.11 - Fichtelberg; Zeitraum 1991 bis 2005; *p* = 877 hPa**
**Tabelle 3.11.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 34 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 33 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 32 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 31 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 30 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 29 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 28 | | | | | | | | 1 | | | | | | | | | | | | | 1 | 1 |
| 27 | | | | | | | | 1 | 1 | | | | | | | | | | | | 2 | 3 |
| 26 | | | | | | | | 1 | 3 | 3 | | 3 | 1 | 1 | | | | | | | 12 | 15 |
| 25 | | | | | | | 1 | 3 | 3 | 3 | 6 | 7 | 1 | 1 | | | | | | | 25 | 40 |
| 24 | | | | | | | 5 | 11 | 7 | 11 | 12 | 11 | 5 | 2 | 1 | | | | | | 65 | 105 |
| 23 | | | | | | 1 | 6 | 13 | 16 | 13 | 21 | 19 | 9 | 7 | 6 | | | | | | 111 | 216 |
| 22 | | | | | | 3 | 7 | 14 | 22 | 27 | 24 | 23 | 14 | 11 | 3 | 1 | | | | 1 | 150 | 366 |
| 21 | | | | | | 7 | 17 | 19 | 40 | 58 | 41 | 39 | 27 | 4 | 2 | 1 | 1 | | | | 256 | 622 |
| 20 | | | | 1 | 5 | 9 | 23 | 43 | 61 | 93 | 63 | 69 | 24 | 5 | 4 | 1 | 1 | 1 | | | 403 | 1.025 |
| 19 | | | 2 | | | 8 | 33 | 63 | 111 | 102 | 97 | 99 | 35 | 9 | 2 | | | | | | 561 | 1.586 |
| 18 | | | 1 | 1 | 1 | 10 | 49 | 94 | 149 | 153 | 141 | 103 | 27 | 7 | 5 | 2 | | | | | 743 | 2.329 |
| 17 | | | 2 | 1 | 6 | 15 | 77 | 149 | 206 | 221 | 183 | 98 | 47 | 15 | 3 | | | | | | 1.023 | 3.352 |
| 16 | | | 1 | 2 | 12 | 33 | 86 | 215 | 261 | 287 | 197 | 97 | 48 | 17 | | | | | | | 1.256 | 4.608 |
| 15 | | | 3 | 2 | 21 | 70 | 174 | 277 | 344 | 333 | 241 | 121 | 63 | 3 | | | | | | | 1.652 | 6.260 |
| 14 | 1 | | 1 | 9 | 25 | 91 | 212 | 352 | 403 | 399 | 264 | 239 | 24 | | | | | | | | 2.020 | 8.280 |
| 13 | | 1 | 5 | 15 | 39 | 148 | 272 | 382 | 481 | 413 | 401 | 188 | | | | | | | | | 2.345 | 10.625 |
| 12 | | 1 | 9 | 14 | 69 | 181 | 351 | 525 | 493 | 488 | 601 | | | | | | | | | | 2.732 | 13.357 |
| 11 | | 1 | 11 | 23 | 102 | 226 | 444 | 593 | 618 | 1003 | 25 | | | | | | | | | | 3.046 | 16.403 |
| 10 | | 4 | 20 | 31 | 138 | 291 | 556 | 654 | 1057 | 636 | | | | | | | | | | | 3.387 | 19.790 |
| 9 | 1 | 14 | 17 | 67 | 195 | 349 | 665 | 751 | 1443 | | | | | | | | | | | | 3.502 | 23.292 |
| 8 | 2 | 19 | 28 | 84 | 260 | 469 | 673 | 1591 | 479 | | | | | | | | | | | | 3.605 | 26.897 |
| 7 | 3 | 28 | 40 | 122 | 308 | 555 | 810 | 1839 | | | | | | | | | | | | | 3.705 | 30.602 |
| 6 | 5 | 47 | 76 | 233 | 316 | 615 | 2211 | 397 | | | | | | | | | | | | | 3.900 | 34.502 |
| 5 | 21 | 45 | 93 | 235 | 449 | 791 | 2250 | | | | | | | | | | | | | | 3.884 | 38.386 |
| 4 | 19 | 67 | 137 | 280 | 585 | 1920 | 1007 | | | | | | | | | | | | | | 4.015 | 42.401 |
| 3 | 33 | 95 | 153 | 321 | 621 | 2663 | | | | | | | | | | | | | | | 3.886 | 46.287 |
| 2 | 41 | 71 | 161 | 399 | 817 | 2245 | | | | | | | | | | | | | | | 3.734 | 50.021 |
| 1 | 59 | 81 | 182 | 467 | 2575 | 93 | | | | | | | | | | | | | | | 3.457 | 53.478 |
| 0 | 37 | 83 | 199 | 512 | 2891 | | | | | | | | | | | | | | | | 3.722 | 57.200 |
| -0 | 40 | 75 | 216 | 555 | 3001 | | | | | | | | | | | | | | | | 3.887 | 61.087 |
| -1 | 33 | 81 | 248 | 3072 | 481 | | | | | | | | | | | | | | | | 3.915 | 65.002 |
| -2 | 39 | 71 | 285 | 3399 | | | | | | | | | | | | | | | | | 3.794 | 68.796 |
| -3 | 45 | 100 | 283 | 3199 | | | | | | | | | | | | | | | | | 3.627 | 72.423 |
| -4 | 23 | 78 | 768 | 2203 | | | | | | | | | | | | | | | | | 3.072 | 75.495 |
| -5 | 15 | 60 | 2601 | 61 | | | | | | | | | | | | | | | | | 2.737 | 78.232 |
| -6 | 10 | 55 | 2277 | | | | | | | | | | | | | | | | | | 2.342 | 80.574 |
| -7 | 17 | 78 | 1703 | | | | | | | | | | | | | | | | | | 1.798 | 82.372 |
| -8 | 20 | 95 | 1289 | | | | | | | | | | | | | | | | | | 1.404 | 83.776 |
| -9 | 27 | 256 | 735 | | | | | | | | | | | | | | | | | | 1.018 | 84.794 |
| -10 | 32 | 721 | 51 | | | | | | | | | | | | | | | | | | 804 | 85.598 |
| -11 | 32 | 672 | | | | | | | | | | | | | | | | | | | 704 | 86.302 |
| -12 | 26 | 453 | | | | | | | | | | | | | | | | | | | 479 | 86.781 |
| -13 | 25 | 324 | | | | | | | | | | | | | | | | | | | 349 | 87.130 |
| -14 | 23 | 191 | | | | | | | | | | | | | | | | | | | 214 | 87.344 |
| -15 | 11 | 106 | | | | | | | | | | | | | | | | | | | 117 | 87.461 |
| -16 | 13 | 60 | | | | | | | | | | | | | | | | | | | 73 | 87.534 |
| -17 | 7 | 24 | | | | | | | | | | | | | | | | | | | 31 | 87.565 |
| -18 | 33 | 1 | | | | | | | | | | | | | | | | | | | 34 | 87.599 |
| -19 | 7 | | | | | | | | | | | | | | | | | | | | 7 | 87.606 |
| -20 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.609 |
| -21 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.610 |
| -22 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.613 |
| -23 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.616 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.616 |

Summe

| 710 | 4.058 | 11.597 | 15.308 | 12.917 | 10.793 | 9.929 | 7.988 | 6.198 | 4.243 | 2.317 | 1.116 | 325 | 82 | 26 | 5 | 2 | 1 | 0 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 710 | 4.768 | 16.365 | 31.673 | 44.590 | 55.383 | 65.312 | 73.300 | 79.498 | 83.741 | 86.058 | 87.174 | 87.499 | 87.581 | 87.607 | 87.612 | 87.614 | 87.615 | 87.615 | 87.616 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 5 | 16 | 31 | 63 | 117 | 209 | 401 | 747 | 1.226 | 1.985 | 3.043 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 7.581 | 12.580 | 18.615 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 1.010 | 411 | 139 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 5.619 |
| 17 | 4.909 |
| 15 | 4.218 |
| 10 | 2.649 |

# Tabelle A12. 24-Stundenwerte für Mannheim / Table A12. 24-hour values for Mannheim

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.12 - Mannheim; Zeitraum 1991 bis 2005; *p* = 1005 hPa**
**Tabelle 3.12.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | 1 | 3 | 1 | | | | | | | | | | | | | | 5 | 5 |
| 37 | | | | | | 3 | 6 | 1 | 1 | | | | | | | | | | | | 11 | 16 |
| 36 | | | | | 4 | 4 | 5 | 6 | 2 | 3 | | 1 | 2 | | | | | | | | 27 | 43 |
| 35 | | | | | 1 | 5 | 7 | 3 | 4 | 1 | 3 | 1 | 1 | | | | | | | | 26 | 69 |
| 34 | | | | | | 5 | 10 | 6 | 7 | 5 | 7 | 8 | 1 | 1 | 1 | | | | | | 51 | 120 |
| 33 | | | | 1 | 3 | 3 | 10 | 7 | 7 | 13 | 16 | 11 | 3 | 1 | 1 | 1 | 2 | 1 | | | 80 | 200 |
| 32 | | | | | 5 | 8 | 15 | 11 | 15 | 25 | 11 | 14 | 9 | 7 | 1 | | 1 | 1 | | 1 | 124 | 324 |
| 31 | | | | | 7 | 11 | 19 | 27 | 31 | 23 | 25 | 25 | 18 | 13 | 4 | 3 | 3 | | | | 209 | 533 |
| 30 | | | | 1 | 4 | 17 | 27 | 42 | 57 | 57 | 49 | 44 | 21 | 19 | 10 | 3 | 2 | | 1 | | 354 | 887 |
| 29 | | | | 3 | 14 | 20 | 33 | 59 | 87 | 79 | 57 | 45 | 15 | 13 | 8 | 5 | 1 | 2 | | | 441 | 1.328 |
| 28 | | | | 3 | 16 | 27 | 46 | 75 | 89 | 93 | 83 | 63 | 41 | 27 | 15 | 9 | 1 | 1 | 1 | | 590 | 1.918 |
| 27 | | | 1 | 7 | 25 | 28 | 49 | 83 | 111 | 117 | 101 | 96 | 57 | 21 | 16 | 7 | 2 | 1 | | | 722 | 2.640 |
| 26 | | | | 7 | 21 | 35 | 76 | 110 | 126 | 111 | 111 | 81 | 63 | 41 | 18 | 5 | 2 | 1 | 1 | 1 | 810 | 3.450 |
| 25 | | | | 9 | 33 | 49 | 105 | 128 | 130 | 148 | 135 | 102 | 77 | 47 | 26 | 7 | 4 | 1 | 1 | | 1.002 | 4.452 |
| 24 | | | | 17 | 37 | 75 | 118 | 158 | 185 | 187 | 147 | 101 | 97 | 56 | 27 | 9 | 6 | 2 | 1 | | 1.223 | 5.675 |
| 23 | | | 3 | 13 | 35 | 89 | 160 | 190 | 185 | 205 | 177 | 139 | 99 | 71 | 29 | 9 | 4 | 1 | | | 1.409 | 7.084 |
| 22 | | | 3 | 13 | 36 | 118 | 172 | 236 | 237 | 239 | 204 | 167 | 99 | 59 | 31 | 9 | 4 | 1 | | | 1.628 | 8.712 |
| 21 | | | 7 | 25 | 51 | 133 | 203 | 257 | 276 | 284 | 249 | 203 | 144 | 92 | 36 | 11 | 1 | | | | 1.972 | 10.684 |
| 20 | | | 9 | 33 | 91 | 152 | 219 | 245 | 326 | 341 | 309 | 243 | 163 | 105 | 29 | 5 | | | | | 2.270 | 12.954 |
| 19 | | | 19 | 39 | 107 | 177 | 248 | 294 | 360 | 365 | 330 | 325 | 240 | 91 | 20 | | | | | | 2.615 | 15.569 |
| 18 | | 1 | 21 | 47 | 111 | 207 | 291 | 344 | 409 | 440 | 377 | 382 | 282 | 17 | | | | | | | 2.929 | 18.498 |
| 17 | | 1 | 21 | 57 | 117 | 213 | 303 | 390 | 490 | 504 | 517 | 467 | 78 | | | | | | | | 3.158 | 21.656 |
| 16 | | 4 | 13 | 58 | 135 | 246 | 384 | 456 | 584 | 625 | 687 | 195 | 3 | | | | | | | | 3.390 | 25.046 |
| 15 | | 1 | 24 | 79 | 149 | 275 | 411 | 549 | 747 | 833 | 491 | 7 | | | | | | | | | 3.566 | 28.612 |
| 14 | | 4 | 31 | 81 | 171 | 288 | 457 | 689 | 858 | 954 | 60 | | | | | | | | | | 3.593 | 32.205 |
| 13 | | 9 | 37 | 103 | 181 | 342 | 601 | 785 | 1177 | 444 | | | | | | | | | | | 3.679 | 35.884 |
| 12 | | 7 | 44 | 135 | 218 | 433 | 771 | 1065 | 1072 | 21 | | | | | | | | | | | 3.766 | 39.650 |
| 11 | | 7 | 53 | 148 | 285 | 583 | 951 | 1471 | 294 | | | | | | | | | | | | 3.792 | 43.442 |
| 10 | | 7 | 55 | 179 | 403 | 756 | 1170 | 1141 | 5 | | | | | | | | | | | | 3.716 | 47.158 |
| 9 | | 9 | 73 | 205 | 507 | 1081 | 1682 | 273 | | | | | | | | | | | | | 3.830 | 50.988 |
| 8 | | 21 | 105 | 237 | 663 | 1351 | 1397 | 9 | | | | | | | | | | | | | 3.783 | 54.771 |
| 7 | | 16 | 125 | 322 | 876 | 1946 | 571 | | | | | | | | | | | | | | 3.856 | 58.627 |
| 6 | | 15 | 125 | 433 | 1177 | 1879 | 37 | | | | | | | | | | | | | | 3.666 | 62.293 |
| 5 | | 17 | 136 | 613 | 1625 | 1160 | | | | | | | | | | | | | | | 3.551 | 65.844 |
| 4 | | 14 | 167 | 783 | 2042 | 215 | | | | | | | | | | | | | | | 3.221 | 69.065 |
| 3 | | 31 | 193 | 1104 | 1807 | 1 | | | | | | | | | | | | | | | 3.136 | 72.201 |
| 2 | | 39 | 267 | 1487 | 1109 | | | | | | | | | | | | | | | | 2.902 | 75.103 |
| 1 | | 47 | 383 | 1960 | 343 | | | | | | | | | | | | | | | | 2.733 | 77.836 |
| 0 | | 51 | 519 | 1927 | 7 | | | | | | | | | | | | | | | | 2.504 | 80.340 |
| -0 | | 69 | 644 | 1063 | | | | | | | | | | | | | | | | | 1.776 | 82.116 |
| -1 | 1 | 96 | 826 | 657 | | | | | | | | | | | | | | | | | 1.580 | 83.696 |
| -2 | 1 | 101 | 946 | 137 | | | | | | | | | | | | | | | | | 1.185 | 84.881 |
| -3 | | 139 | 707 | 4 | | | | | | | | | | | | | | | | | 850 | 85.731 |
| -4 | | 147 | 411 | | | | | | | | | | | | | | | | | | 558 | 86.289 |
| -5 | | 133 | 267 | | | | | | | | | | | | | | | | | | 400 | 86.689 |
| -6 | | 155 | 119 | | | | | | | | | | | | | | | | | | 274 | 86.963 |
| -7 | | 167 | 37 | | | | | | | | | | | | | | | | | | 204 | 87.167 |
| -8 | | 151 | | | | | | | | | | | | | | | | | | | 151 | 87.318 |
| -9 | 1 | 116 | | | | | | | | | | | | | | | | | | | 117 | 87.435 |
| -10 | 2 | 86 | | | | | | | | | | | | | | | | | | | 88 | 87.523 |
| -11 | 1 | 33 | | | | | | | | | | | | | | | | | | | 34 | 87.557 |
| -12 | | 33 | | | | | | | | | | | | | | | | | | | 33 | 87.590 |
| -13 | | 25 | | | | | | | | | | | | | | | | | | | 25 | 87.615 |
| -14 | 1 | 21 | | | | | | | | | | | | | | | | | | | 22 | 87.637 |
| -15 | 7 | 4 | | | | | | | | | | | | | | | | | | | 11 | 87.648 |
| -16 | 7 | | | | | | | | | | | | | | | | | | | | 7 | 87.655 |
| -17 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.658 |
| -18 | | | | | | | | | | | | | | | | | | | | | 0 | 87.658 |
| -19 | | | | | | | | | | | | | | | | | | | | | 0 | 87.658 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.658 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.658 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.658 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.658 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.658 |

Summe

| 24 | 1.777 | 6.391 | 11.990 | 12.417 | 11.938 | 10.555 | 9.110 | 7.872 | 6.117 | 4.146 | 2.720 | 1.513 | 681 | 272 | 83 | 33 | 12 | 5 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 24 | 1.801 | 8.192 | 20.182 | 32.599 | 44.537 | 55.092 | 64.202 | 72.074 | 78.191 | 82.337 | 85.057 | 86.570 | 87.251 | 87.523 | 87.606 | 87.639 | 87.651 | 87.656 | 87.658 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 1 | 3 | 8 | 14 | 22 | 34 | 64 | 128 | 236 | 414 | 721 | 1.205 | 1.928 | 2.792 | 3.926 | 5.481 | 7.301 | 9.781 | 12.286 | 15.466 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 4.650 | 8.507 | 13.488 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.689 | 1.437 | 697 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.171 |
| 17 | 2.595 |
| 15 | 2.074 |
| 10 | 1.035 |

# Tabelle A13. 24-Stundenwerte für Mühldorf/Inn / Table A13. 24-hour values for Mühldorf/Inn

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.13 - Mühldorf/Inn; Zeitraum 1991 bis 2005; *p* = 969 hPa**
**Tabelle 3.13.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | 1 | | | | | | | | | | | | | | 1 | 1 |
| 35 | | | | | | | 1 | 1 | 1 | 1 | | | | | | | | | | | 3 | 5 |
| 34 | | | | | | 1 | | | 4 | 3 | 2 | 1 | | 1 | | | | | | | 12 | 17 |
| 33 | | | | | | | 1 | 5 | 3 | 9 | 5 | 3 | 3 | 1 | 1 | | | | | | 31 | 48 |
| 32 | | | | | | | 2 | 7 | 15 | 9 | 13 | 15 | 9 | 3 | 1 | 1 | | | | | 75 | 123 |
| 31 | | | | | | | 3 | 7 | 10 | 20 | 21 | 14 | 15 | 7 | 5 | 1 | 1 | 1 | | | 104 | 227 |
| 30 | | | | | | 4 | 2 | 8 | 14 | 19 | 29 | 30 | 18 | 12 | 5 | 5 | 1 | 1 | | | 149 | 375 |
| 29 | | | | | | 3 | 6 | 11 | 30 | 30 | 43 | 41 | 28 | 21 | 9 | 4 | 1 | | | | 227 | 602 |
| 28 | | | | | | 1 | 11 | 19 | 37 | 53 | 61 | 70 | 53 | 32 | 14 | 6 | 3 | | | | 361 | 963 |
| 27 | | | | | 1 | 5 | 15 | 33 | 49 | 79 | 85 | 87 | 65 | 47 | 13 | 6 | 1 | | | | 485 | 1.448 |
| 26 | | | | | 1 | 5 | 26 | 63 | 69 | 102 | 101 | 87 | 69 | 39 | 23 | 5 | 2 | | | | 591 | 2.039 |
| 25 | | | | | 3 | 12 | 37 | 62 | 99 | 111 | 135 | 127 | 94 | 71 | 27 | 5 | 1 | | | | 783 | 2.823 |
| 24 | | | | 1 | 5 | 26 | 51 | 92 | 130 | 127 | 143 | 135 | 96 | 68 | 25 | 6 | 1 | | | | 907 | 3.729 |
| 23 | | | | 1 | 17 | 27 | 59 | 103 | 136 | 164 | 183 | 161 | 116 | 71 | 27 | 5 | 2 | | | | 1.073 | 4.802 |
| 22 | | | 1 | | 19 | 39 | 56 | 126 | 176 | 143 | 183 | 167 | 141 | 85 | 26 | 3 | | | | | 1.165 | 5.967 |
| 21 | | | | 3 | 11 | 40 | 89 | 153 | 176 | 209 | 218 | 203 | 143 | 103 | 21 | 7 | 1 | | | | 1.376 | 7.343 |
| 20 | | | | 4 | 34 | 74 | 125 | 158 | 191 | 238 | 241 | 210 | 179 | 97 | 26 | 2 | | | | | 1.577 | 8.921 |
| 19 | | | | 3 | 27 | 87 | 123 | 195 | 224 | 265 | 271 | 257 | 217 | 119 | 21 | | | | | | 1.811 | 10.731 |
| 18 | | | | 9 | 44 | 78 | 149 | 239 | 265 | 325 | 324 | 331 | 283 | 131 | 4 | | | | | | 2.181 | 12.913 |
| 17 | | | 1 | 21 | 60 | 104 | 167 | 256 | 332 | 338 | 391 | 439 | 391 | 39 | | | | | | | 2.539 | 15.451 |
| 16 | | | 1 | 24 | 67 | 146 | 188 | 307 | 361 | 417 | 519 | 728 | 153 | | | | | | | | 2.912 | 18.363 |
| 15 | | | 3 | 21 | 85 | 163 | 219 | 339 | 393 | 564 | 890 | 511 | | | | | | | | | 3.189 | 21.553 |
| 14 | | | 5 | 24 | 86 | 171 | 270 | 353 | 544 | 915 | 1050 | 9 | | | | | | | | | 3.427 | 24.980 |
| 13 | | | 7 | 27 | 103 | 210 | 280 | 453 | 721 | 1319 | 194 | | | | | | | | | | 3.313 | 28.293 |
| 12 | | | 7 | 31 | 125 | 261 | 369 | 603 | 1273 | 826 | | | | | | | | | | | 3.495 | 31.787 |
| 11 | | 1 | 14 | 47 | 134 | 341 | 424 | 919 | 1767 | 18 | | | | | | | | | | | 3.665 | 35.453 |
| 10 | | 1 | 13 | 68 | 202 | 409 | 576 | 1684 | 649 | | | | | | | | | | | | 3.603 | 39.056 |
| 9 | | 0 | 13 | 87 | 257 | 516 | 936 | 1589 | | | | | | | | | | | | | 3.397 | 42.453 |
| 8 | | 1 | 20 | 109 | 314 | 693 | 1611 | 510 | | | | | | | | | | | | | 3.259 | 45.711 |
| 7 | | 3 | 33 | 131 | 414 | 929 | 1597 | | | | | | | | | | | | | | 3.107 | 48.819 |
| 6 | 1 | 3 | 43 | 171 | 537 | 1569 | 797 | | | | | | | | | | | | | | 3.121 | 51.940 |
| 5 | 1 | 3 | 49 | 219 | 803 | 2109 | 13 | | | | | | | | | | | | | | 3.197 | 55.137 |
| 4 | 3 | 9 | 58 | 315 | 1308 | 1326 | | | | | | | | | | | | | | | 3.018 | 58.155 |
| 3 | 3 | 6 | 111 | 447 | 2284 | 333 | | | | | | | | | | | | | | | 3.185 | 61.340 |
| 2 | 2 | 6 | 119 | 675 | 2513 | | | | | | | | | | | | | | | | 3.315 | 64.655 |
| 1 | 4 | 10 | 166 | 1441 | 2055 | | | | | | | | | | | | | | | | 3.676 | 68.331 |
| 0 | 36 | 13 | 217 | 3111 | 740 | | | | | | | | | | | | | | | | 4.116 | 72.447 |
| -0 | | 12 | 331 | 2627 | | | | | | | | | | | | | | | | | 2.969 | 75.417 |
| -1 | | 29 | 581 | 2217 | | | | | | | | | | | | | | | | | 2.828 | 78.245 |
| -2 | 1 | 41 | 972 | 1204 | | | | | | | | | | | | | | | | | 2.219 | 80.463 |
| -3 | 1 | 65 | 1481 | 189 | | | | | | | | | | | | | | | | | 1.735 | 82.199 |
| -4 | | 85 | 1252 | | | | | | | | | | | | | | | | | | 1.337 | 83.535 |
| -5 | | 122 | 871 | | | | | | | | | | | | | | | | | | 993 | 84.529 |
| -6 | 1 | 183 | 510 | | | | | | | | | | | | | | | | | | 694 | 85.223 |
| -7 | 3 | 275 | 265 | | | | | | | | | | | | | | | | | | 543 | 85.766 |
| -8 | 3 | 335 | 39 | | | | | | | | | | | | | | | | | | 377 | 86.143 |
| -9 | 4 | 319 | | | | | | | | | | | | | | | | | | | 323 | 86.466 |
| -10 | 2 | 235 | | | | | | | | | | | | | | | | | | | 237 | 86.703 |
| -11 | 1 | 225 | | | | | | | | | | | | | | | | | | | 226 | 86.929 |
| -12 | 1 | 145 | | | | | | | | | | | | | | | | | | | 146 | 87.075 |
| -13 | 5 | 129 | | | | | | | | | | | | | | | | | | | 135 | 87.210 |
| -14 | 11 | 97 | | | | | | | | | | | | | | | | | | | 107 | 87.317 |
| -15 | 39 | 57 | | | | | | | | | | | | | | | | | | | 96 | 87.413 |
| -16 | 63 | 5 | | | | | | | | | | | | | | | | | | | 69 | 87.482 |
| -17 | 48 | | | | | | | | | | | | | | | | | | | | 48 | 87.530 |
| -18 | 31 | | | | | | | | | | | | | | | | | | | | 31 | 87.561 |
| -19 | 25 | | | | | | | | | | | | | | | | | | | | 25 | 87.586 |
| -20 | 25 | | | | | | | | | | | | | | | | | | | | 25 | 87.611 |
| -21 | 15 | | | | | | | | | | | | | | | | | | | | 15 | 87.626 |
| -22 | 12 | | | | | | | | | | | | | | | | | | | | 12 | 87.638 |
| -23 | 7 | | | | | | | | | | | | | | | | | | | | 7 | 87.645 |
| -24 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.645 |

Summe

| 348 | 2.417 | 7.182 | 13.227 | 12.249 | 9.683 | 8.205 | 8.293 | 7.668 | 6.305 | 5.103 | 3.627 | 2.073 | 947 | 247 | 57 | 15 | 1 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 348 | 2.765 | 9.947 | 23.173 | 35.422 | 45.105 | 53.310 | 61.603 | 69.271 | 75.577 | 80.679 | 84.307 | 86.379 | 87.326 | 87.573 | 87.629 | 87.644 | 87.645 | 87.645 | 87.645 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 1 | 2 | 4 | 16 | 37 | 74 | 160 | 348 | 651 | 1.130 | 1.835 | 2.668 | 3.806 | 5.219 | 6.859 | 8.891 | 11.759 | 14.387 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 5.394 | 9.421 | 14.341 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 3.324 | 1.801 | 850 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 3.996 |
| 17 | 3.374 |
| 15 | 2.797 |
| 10 | 1.600 |

# Tabelle A14. 24-Stundenwerte für Stötten / Table A14. 24-hour values for Stötten

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.14 - Stötten; Zeitraum 1991 bis 2005; p = 931 hPa**
**Tabelle 3.14.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 34 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 33 | | | | | | | 1 | | | | | | | | | | | | | | 1 | 1 |
| 32 | | | | | | 2 | 1 | 1 | 1 | 1 | | | | | | | | | | | 6 | 7 |
| 31 | | | | | 1 | 3 | 4 | 4 | 6 | 7 | 3 | 2 | 1 | | | | | | | | 31 | 38 |
| 30 | | | | | | 2 | 5 | 3 | 5 | 8 | 6 | 3 | 3 | | | | | | | | 35 | 73 |
| 29 | | | | | | | 4 | 2 | 7 | 13 | 7 | 15 | 7 | 2 | 3 | | | | | | 60 | 133 |
| 28 | | | | | | | 3 | 9 | 15 | 16 | 13 | 22 | 6 | 4 | 4 | 1 | | | | | 93 | 226 |
| 27 | | | | | | 1 | 4 | 11 | 23 | 24 | 35 | 32 | 15 | 6 | 5 | 4 | 1 | | | | 161 | 387 |
| 26 | | | | | | 1 | 12 | 20 | 39 | 43 | 52 | 41 | 25 | 13 | 4 | 2 | 1 | | | | 253 | 640 |
| 25 | | | | | | 3 | 15 | 49 | 55 | 57 | 72 | 71 | 48 | 26 | 9 | 2 | 3 | | 1 | | 411 | 1.051 |
| 24 | | | | | | 7 | 24 | 49 | 71 | 95 | 89 | 87 | 67 | 27 | 7 | 4 | 1 | | | | 528 | 1.579 |
| 23 | | | | | 1 | 16 | 33 | 65 | 108 | 121 | 131 | 125 | 79 | 45 | 9 | 3 | | | | | 736 | 2.315 |
| 22 | | | | | 3 | 9 | 38 | 81 | 123 | 161 | 167 | 152 | 97 | 42 | 10 | 4 | | | | | 887 | 3.202 |
| 21 | | | | 3 | 14 | 22 | 57 | 129 | 154 | 191 | 194 | 199 | 123 | 37 | 8 | 2 | | | | | 1.133 | 4.335 |
| 20 | | | | 3 | 14 | 30 | 75 | 145 | 224 | 227 | 253 | 199 | 134 | 59 | 17 | 3 | | | | | 1.383 | 5.718 |
| 19 | | | | 1 | 13 | 45 | 104 | 198 | 273 | 319 | 293 | 210 | 105 | 49 | 20 | 2 | | | | | 1.632 | 7.350 |
| 18 | | | | 1 | 33 | 57 | 156 | 235 | 300 | 368 | 332 | 257 | 123 | 55 | 17 | | | | | | 1.934 | 9.284 |
| 17 | | | | 9 | 28 | 84 | 217 | 294 | 370 | 397 | 402 | 285 | 139 | 79 | 2 | | | | | | 2.306 | 11.590 |
| 16 | | | | 15 | 32 | 97 | 261 | 365 | 420 | 455 | 467 | 317 | 209 | 18 | | | | | | | 2.656 | 14.246 |
| 15 | | | 3 | 25 | 70 | 155 | 285 | 411 | 454 | 489 | 439 | 477 | 117 | | | | | | | | 2.925 | 17.171 |
| 14 | | | 5 | 38 | 104 | 199 | 367 | 509 | 558 | 573 | 611 | 317 | | | | | | | | | 3.281 | 20.452 |
| 13 | | | 3 | 45 | 117 | 247 | 410 | 587 | 635 | 685 | 692 | | | | | | | | | | 3.421 | 23.873 |
| 12 | | | 7 | 55 | 146 | 307 | 501 | 641 | 729 | 1159 | 89 | | | | | | | | | | 3.634 | 27.507 |
| 11 | | 1 | 22 | 73 | 189 | 367 | 671 | 731 | 1097 | 565 | | | | | | | | | | | 3.716 | 31.223 |
| 10 | | 2 | 25 | 97 | 246 | 505 | 728 | 894 | 1391 | | | | | | | | | | | | 3.888 | 35.111 |
| 9 | | 1 | 41 | 121 | 334 | 645 | 824 | 1657 | 486 | | | | | | | | | | | | 4.109 | 39.220 |
| 8 | | 7 | 54 | 176 | 419 | 769 | 981 | 1429 | | | | | | | | | | | | | 3.835 | 43.055 |
| 7 | | 5 | 65 | 213 | 517 | 957 | 1635 | 435 | | | | | | | | | | | | | 3.827 | 46.882 |
| 6 | | 12 | 88 | 257 | 702 | 1201 | 1508 | | | | | | | | | | | | | | 3.768 | 50.650 |
| 5 | | 9 | 117 | 325 | 904 | 1776 | 605 | | | | | | | | | | | | | | 3.736 | 54.386 |
| 4 | | 15 | 122 | 440 | 1138 | 1795 | | | | | | | | | | | | | | | 3.510 | 57.896 |
| 3 | | 22 | 137 | 565 | 1435 | 1377 | | | | | | | | | | | | | | | 3.536 | 61.432 |
| 2 | 1 | 31 | 160 | 719 | 2208 | 115 | | | | | | | | | | | | | | | 3.234 | 64.666 |
| 1 | 3 | 21 | 210 | 963 | 1960 | | | | | | | | | | | | | | | | 3.157 | 67.823 |
| 0 | 4 | 19 | 253 | 1179 | 1695 | | | | | | | | | | | | | | | | 3.150 | 70.973 |
| -0 | 5 | 25 | 264 | 2207 | 357 | | | | | | | | | | | | | | | | 2.858 | 73.831 |
| -1 | 11 | 34 | 367 | 2443 | | | | | | | | | | | | | | | | | 2.855 | 76.686 |
| -2 | 6 | 63 | 507 | 1790 | | | | | | | | | | | | | | | | | 2.366 | 79.052 |
| -3 | 1 | 60 | 902 | 1000 | | | | | | | | | | | | | | | | | 1.963 | 81.015 |
| -4 | 1 | 85 | 1525 | 61 | | | | | | | | | | | | | | | | | 1.672 | 82.687 |
| -5 | 2 | 107 | 1244 | | | | | | | | | | | | | | | | | | 1.353 | 84.040 |
| -6 | 3 | 129 | 936 | | | | | | | | | | | | | | | | | | 1.068 | 85.108 |
| -7 | 1 | 165 | 695 | | | | | | | | | | | | | | | | | | 861 | 85.969 |
| -8 | 1 | 331 | 248 | | | | | | | | | | | | | | | | | | 580 | 86.549 |
| -9 | | 357 | 7 | | | | | | | | | | | | | | | | | | 364 | 86.913 |
| -10 | | 289 | | | | | | | | | | | | | | | | | | | 289 | 87.202 |
| -11 | | 173 | | | | | | | | | | | | | | | | | | | 173 | 87.375 |
| -12 | | 130 | | | | | | | | | | | | | | | | | | | 130 | 87.505 |
| -13 | 1 | 65 | | | | | | | | | | | | | | | | | | | 66 | 87.571 |
| -14 | 1 | 29 | | | | | | | | | | | | | | | | | | | 30 | 87.601 |
| -15 | 8 | 34 | | | | | | | | | | | | | | | | | | | 42 | 87.643 |
| -16 | 15 | 5 | | | | | | | | | | | | | | | | | | | 20 | 87.663 |
| -17 | 1 | | | | | | | | | | | | | | | | | | | | 1 | 87.664 |
| -18 | 2 | | | | | | | | | | | | | | | | | | | | 2 | 87.666 |
| -19 | | | | | | | | | | | | | | | | | | | | | 0 | 87.666 |
| -20 | | | | | | | | | | | | | | | | | | | | | 0 | 87.666 |
| -21 | | | | | | | | | | | | | | | | | | | | | 0 | 87.666 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.666 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.666 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.666 |

Summe

| 67 | 2.226 | 8.007 | 12.824 | 12.680 | 10.794 | 9.529 | 8.954 | 7.544 | 5.974 | 4.347 | 2.811 | 1.298 | 462 | 115 | 27 | 6 | 0 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 67 | 2.293 | 10.300 | 23.124 | 35.804 | 46.598 | 56.127 | 65.081 | 72.625 | 78.599 | 82.946 | 85.757 | 87.055 | 87.517 | 87.632 | 87.659 | 87.665 | 87.665 | 87.666 | 87.666 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 1 | 1 | 4 | 17 | 34 | 68 | 146 | 318 | 643 | 1.123 | 1.787 | 2.735 | 4.095 | 5.622 | 7.997 | 10.427 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 5.369 | 9.489 | 14.625 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.402 | 1.197 | 507 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 4.226 |
| 17 | 3.574 |
| 15 | 2.963 |
| 10 | 1.674 |

# Tabelle A15. 24-Stundenwerte für Garmisch-Partenkirchen / Table A15. 24-hour values for Garmisch-Partenkirchen

**Korrelation Lufttemperatur *t* (in °C) / Wasserdampfgehalt *x* (in g/kg tr. Luft); sommerliche Enthalpiesummen**
**Tabelle 3.15 - Garmisch-Partenkirchen; Zeitraum 1991 bis 2005; *p* = 934 hPa**
**Tabelle 3.15.1 - Mittlere jährliche Anzahl der Fälle (in Zehntelstunden), 24 stündliche Messwerte je Tag**

| t/x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Summe | Summenhäufigkeit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 38 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 37 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 36 | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| 35 | | | | | | | 1 | | | | | | | | | | | | | | 1 | 1 |
| 34 | | | | | | 3 | | | | | | | | | | | | | | | 3 | 4 |
| 33 | | | | | 1 | 2 | 1 | 1 | 1 | | | | | | | | | | | | 6 | 10 |
| 32 | | | | | | 2 | 3 | 3 | 3 | 2 | 1 | | 1 | | | | | | | | 15 | 25 |
| 31 | | | | | 1 | 3 | 8 | 15 | 12 | 11 | 2 | 2 | | 1 | | | | | | | 55 | 80 |
| 30 | | | | 1 | 2 | 1 | 11 | 9 | 6 | 17 | 13 | 9 | 8 | 1 | 1 | | | | | | 79 | 159 |
| 29 | | | | 1 | 1 | 6 | 10 | 9 | 26 | 25 | 24 | 19 | 15 | 7 | 1 | 2 | | | | | 146 | 305 |
| 28 | | | | | 3 | 5 | 11 | 23 | 23 | 32 | 38 | 34 | 13 | 14 | 3 | 1 | | | | | 200 | 505 |
| 27 | | | | 2 | 8 | 4 | 15 | 26 | 45 | 47 | 67 | 48 | 29 | 15 | 6 | 1 | | | | | 313 | 818 |
| 26 | | | | 1 | 7 | 13 | 24 | 45 | 68 | 70 | 88 | 72 | 56 | 16 | 6 | 1 | | | | | 467 | 1.285 |
| 25 | | | | 1 | 11 | 11 | 43 | 71 | 89 | 91 | 107 | 109 | 69 | 23 | 7 | 1 | 1 | | | | 634 | 1.919 |
| 24 | | | 1 | 7 | 17 | 19 | 53 | 67 | 104 | 109 | 143 | 128 | 73 | 32 | 14 | 1 | | | | | 768 | 2.687 |
| 23 | | | 4 | 13 | 21 | 34 | 53 | 84 | 107 | 164 | 156 | 153 | 69 | 24 | 6 | 4 | 1 | | | | 893 | 3.580 |
| 22 | | | 2 | 15 | 35 | 44 | 62 | 104 | 151 | 191 | 163 | 131 | 87 | 30 | 10 | 1 | 3 | | | | 1.029 | 4.609 |
| 21 | | | 3 | 13 | 37 | 65 | 83 | 142 | 185 | 215 | 198 | 135 | 80 | 24 | 12 | 4 | | | | | 1.196 | 5.805 |
| 20 | | | 9 | 19 | 52 | 79 | 92 | 171 | 218 | 225 | 191 | 151 | 84 | 30 | 16 | 1 | | | | | 1.338 | 7.143 |
| 19 | | | 11 | 22 | 51 | 100 | 137 | 176 | 224 | 226 | 213 | 162 | 91 | 61 | 4 | | | | | | 1.478 | 8.621 |
| 18 | | 5 | 23 | 31 | 77 | 105 | 139 | 203 | 244 | 261 | 220 | 187 | 154 | 44 | 1 | | | | | | 1.694 | 10.315 |
| 17 | | 3 | 25 | 43 | 93 | 131 | 184 | 255 | 247 | 287 | 274 | 295 | 206 | 7 | | | | | | | 2.050 | 12.365 |
| 16 | | 4 | 31 | 75 | 115 | 163 | 213 | 269 | 271 | 333 | 369 | 541 | 96 | | | | | | | | 2.480 | 14.845 |
| 15 | | 4 | 26 | 88 | 129 | 153 | 237 | 263 | 306 | 383 | 874 | 391 | 1 | | | | | | | | 2.855 | 17.700 |
| 14 | | 2 | 24 | 83 | 147 | 188 | 256 | 281 | 376 | 702 | 1067 | 35 | | | | | | | | | 3.161 | 20.861 |
| 13 | | 3 | 29 | 104 | 145 | 203 | 276 | 334 | 524 | 1614 | 259 | | | | | | | | | | 3.491 | 24.352 |
| 12 | | 3 | 29 | 97 | 168 | 226 | 287 | 414 | 1209 | 1006 | 9 | | | | | | | | | | 3.448 | 27.800 |
| 11 | | 3 | 37 | 131 | 195 | 274 | 351 | 727 | 1750 | 53 | | | | | | | | | | | 3.521 | 31.321 |
| 10 | | 7 | 42 | 115 | 260 | 271 | 403 | 1695 | 763 | | | | | | | | | | | | 3.556 | 34.877 |
| 9 | | 3 | 43 | 129 | 235 | 318 | 646 | 2100 | 33 | | | | | | | | | | | | 3.507 | 38.384 |
| 8 | | 5 | 56 | 151 | 284 | 465 | 1681 | 685 | | | | | | | | | | | | | 3.327 | 41.711 |
| 7 | | 3 | 39 | 176 | 349 | 676 | 2084 | 15 | | | | | | | | | | | | | 3.342 | 45.053 |
| 6 | | 7 | 65 | 208 | 438 | 1484 | 953 | | | | | | | | | | | | | | 3.155 | 48.208 |
| 5 | | 3 | 74 | 256 | 623 | 2102 | 58 | | | | | | | | | | | | | | 3.116 | 51.324 |
| 4 | | 5 | 97 | 308 | 982 | 1744 | | | | | | | | | | | | | | | 3.136 | 54.460 |
| 3 | | 2 | 81 | 371 | 2167 | 525 | | | | | | | | | | | | | | | 3.146 | 57.606 |
| 2 | | 7 | 112 | 603 | 2464 | 15 | | | | | | | | | | | | | | | 3.201 | 60.807 |
| 1 | | 5 | 132 | 1071 | 2463 | | | | | | | | | | | | | | | | 3.671 | 64.478 |
| 0 | | 10 | 155 | 3094 | 1144 | | | | | | | | | | | | | | | | 4.403 | 68.881 |
| -0 | | 11 | 212 | 3051 | 31 | | | | | | | | | | | | | | | | 3.305 | 72.186 |
| -1 | | 9 | 418 | 2685 | | | | | | | | | | | | | | | | | 3.112 | 75.298 |
| -2 | | 19 | 792 | 1747 | | | | | | | | | | | | | | | | | 2.558 | 77.856 |
| -3 | | 13 | 1628 | 315 | | | | | | | | | | | | | | | | | 1.956 | 79.812 |
| -4 | | 27 | 1551 | 3 | | | | | | | | | | | | | | | | | 1.581 | 81.393 |
| -5 | | 43 | 1275 | | | | | | | | | | | | | | | | | | 1.318 | 82.711 |
| -6 | | 76 | 957 | | | | | | | | | | | | | | | | | | 1.033 | 83.744 |
| -7 | | 170 | 639 | | | | | | | | | | | | | | | | | | 809 | 84.553 |
| -8 | | 595 | 131 | | | | | | | | | | | | | | | | | | 726 | 85.279 |
| -9 | | 557 | 2 | | | | | | | | | | | | | | | | | | 559 | 85.838 |
| -10 | | 473 | | | | | | | | | | | | | | | | | | | 473 | 86.311 |
| -11 | | 393 | | | | | | | | | | | | | | | | | | | 393 | 86.704 |
| -12 | | 287 | | | | | | | | | | | | | | | | | | | 287 | 86.991 |
| -13 | | 165 | | | | | | | | | | | | | | | | | | | 165 | 87.156 |
| -14 | 2 | 135 | | | | | | | | | | | | | | | | | | | 137 | 87.293 |
| -15 | 6 | 113 | | | | | | | | | | | | | | | | | | | 119 | 87.412 |
| -16 | 50 | 25 | | | | | | | | | | | | | | | | | | | 75 | 87.487 |
| -17 | 40 | | | | | | | | | | | | | | | | | | | | 40 | 87.527 |
| -18 | 29 | | | | | | | | | | | | | | | | | | | | 29 | 87.556 |
| -19 | 27 | | | | | | | | | | | | | | | | | | | | 27 | 87.583 |
| -20 | 16 | | | | | | | | | | | | | | | | | | | | 16 | 87.599 |
| -21 | 3 | | | | | | | | | | | | | | | | | | | | 3 | 87.602 |
| -22 | | | | | | | | | | | | | | | | | | | | | 0 | 87.602 |
| -23 | | | | | | | | | | | | | | | | | | | | | 0 | 87.602 |
| -24 | | | | | | | | | | | | | | | | | | | | | 0 | 87.602 |

Summe

| 173 | 3.195 | 8.755 | 15.030 | 12.756 | 9.434 | 8.375 | 8.187 | 6.985 | 6.064 | 4.476 | 2.602 | 1.132 | 329 | 87 | 17 | 5 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 173 | 3.368 | 12.123 | 27.153 | 39.909 | 49.343 | 57.718 | 65.905 | 72.890 | 78.954 | 83.430 | 86.032 | 87.164 | 87.493 | 87.580 | 87.597 | 87.602 | 87.602 | 87.602 | 87.602 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Summenhäufigkeit der sommerlichen Enthalpien (in Zehntelstunden)**

Enthalpie (kJ/kg tr.L.)

| >=80 | >=78 | >=76 | >=74 | >=72 | >=70 | >=68 | >=66 | >=64 | >=62 | >=60 | >=58 | >=56 | >=54 | >=52 | >=50 | >=48 | >=46 | >=44 | >=42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Summenhäufigkeit

| 0 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 33 | 88 | 191 | 410 | 796 | 1.371 | 2.090 | 3.042 | 4.363 | 5.871 | 8.143 | 10.543 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Grenzfeuchte (g/kg tr. L.) | 5 | 6 | 7 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|
| Befeuchtungsgrammstunden (gh/kg tr. L.) | 6.277 | 10.740 | 16.093 | | | |
| Entfeuchtungsgrammstunden (gh/kg tr. L.) | | | | 2.232 | 1.064 | 423 |

| Grenztemperat. (°C) | Gradtage (Kd) |
|---|---|
| 19 | 4.375 |
| 17 | 3.731 |
| 15 | 3.126 |
| 10 | 1.845 |

Hier ist ein Datenträger eingeklebt. /
A data carrier should be attached here.

## Schrifttum / Bibliography

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