

Selected Canadian Airports Altitude Correction Plots Off-Standard Atmosphere Approximated

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1.1 Abstract

Most aviation authorities' procedures and regulations require or recommend that pilots apply corrections to minimum instrument approach altitudes during periods of very cold weather conditions, or cold weather conditions in combination with terrain. The purpose of this document is to provide means to implement the cold temperature altitude corrections recommended by International Civil Aviation Organization (ICAO) in document PANS OPS Doc 8168 [1].

ICAO document PANS OPS Doc 8168 [1] recommends the use of three different formulas. These formulas provide altitude corrections with different degrees of approximation for an Off-ISA Atmosphere, which is an atmosphere with the same characteristic of the International Standard Atmosphere but whose temperature profile differs from ISA by a constant temperature offset.

The first formula, called "Sea Level Approximation" is the same used to calculate the well-known ICAO Cold Temperature Altitude Correction Table. It is the least accurate of the three formulas, as it assumes that the airport/station is located at sea level.

The second formula, called "Off-Standard Atmosphere Approximated" still includes approximations, yet it is more accurate than the first one, as it takes into account the airport/station elevation.

The third formula, called "Off-Standard Atmosphere" includes only minor approximations, providing the most accurate corrections.

This document provides Cold Temperature Altitude Correction Plots for a selected number of Canadian Airports.

The formula used is the second of those recommended by International Civil Aviation Organization (ICAO) in document PANS OPS Doc 8168 [1], the so called "Off-Standard Atmosphere Approximated".

1.2 Disclaimer

These notes were produced to improve understanding of cold temperature correction and promote situational awareness. The content of this document should not be used for navigation and the user should always refer to current published approved documents and charts.

The pilot in command of an aircraft is ultimately responsible for its operation and safety during flight.

In these notes, the term “corrected altitude” is used with the intended meaning of “altitude corrected for non-standard temperature”.

1.3 Further Information

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The author is reachable at stefano.rapisarda@flightdeckengineering.com.



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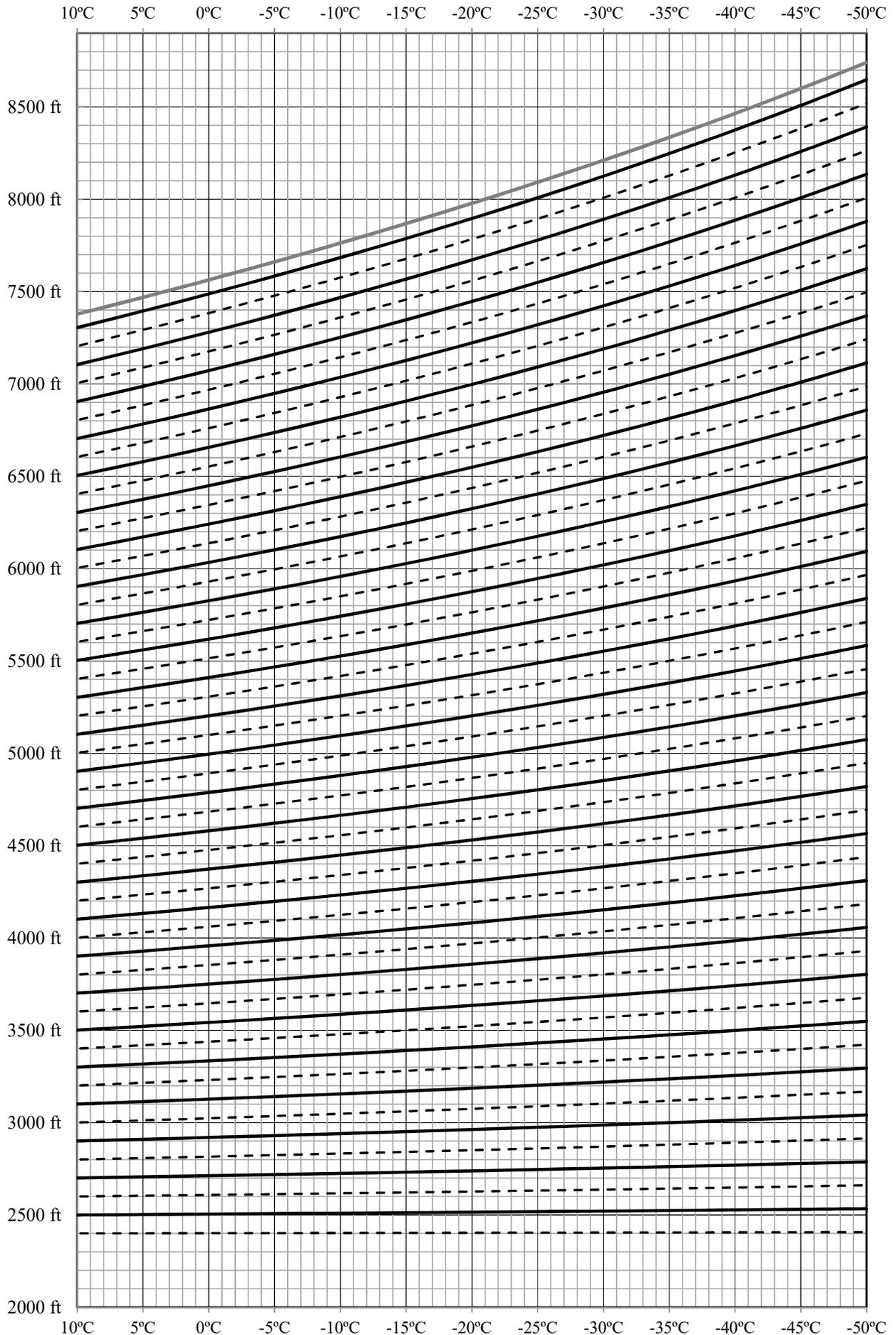
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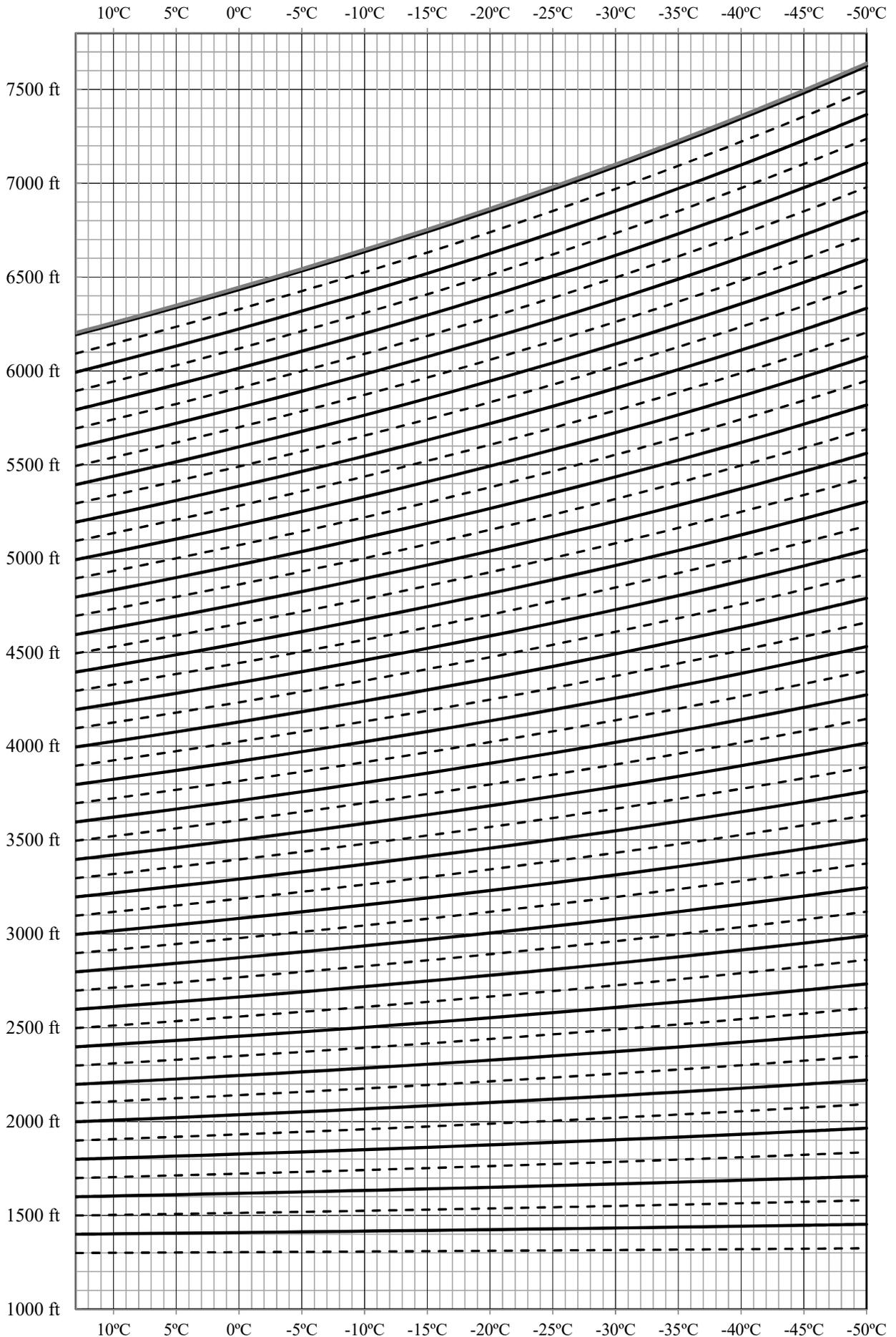
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Altitude (MSL) Corrected for Cold Temperature

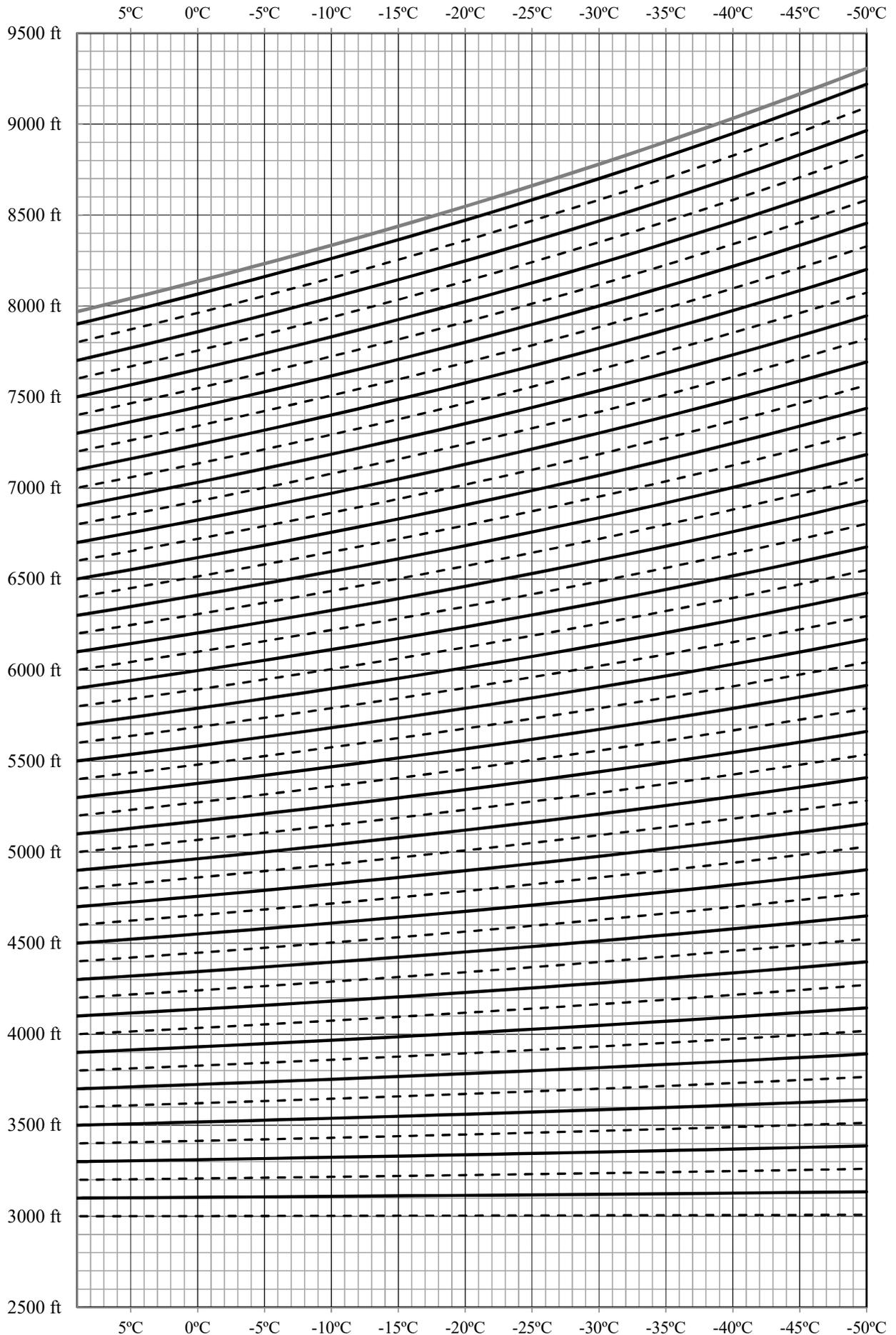


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Altitude (MSL) Corrected for Cold Temperature



Altitude
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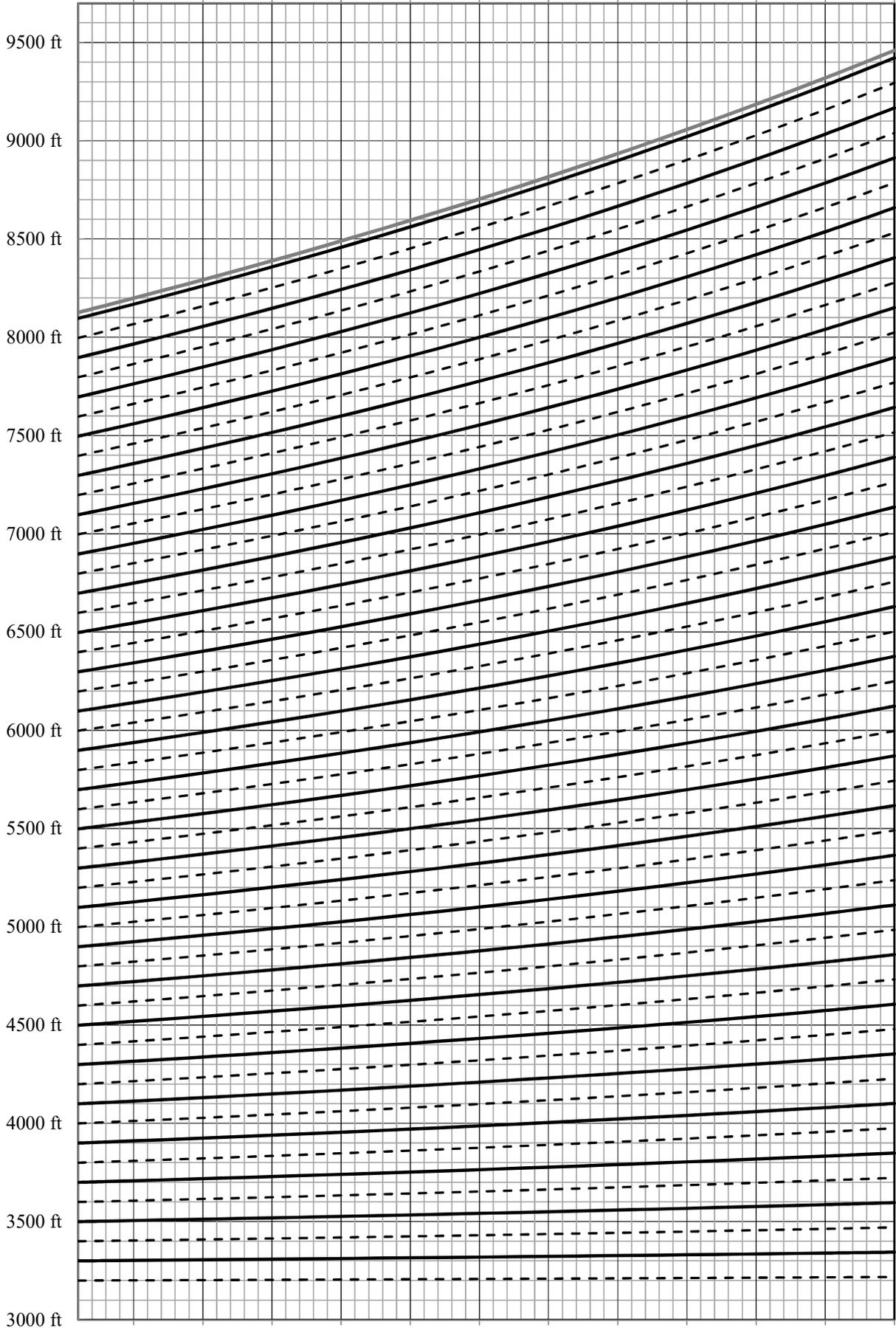
Airport: CYQL - Lethbridge, AB, CANADA. Station Elevation: 3130 feet.

ISA Standard Temperature: 8.8°C

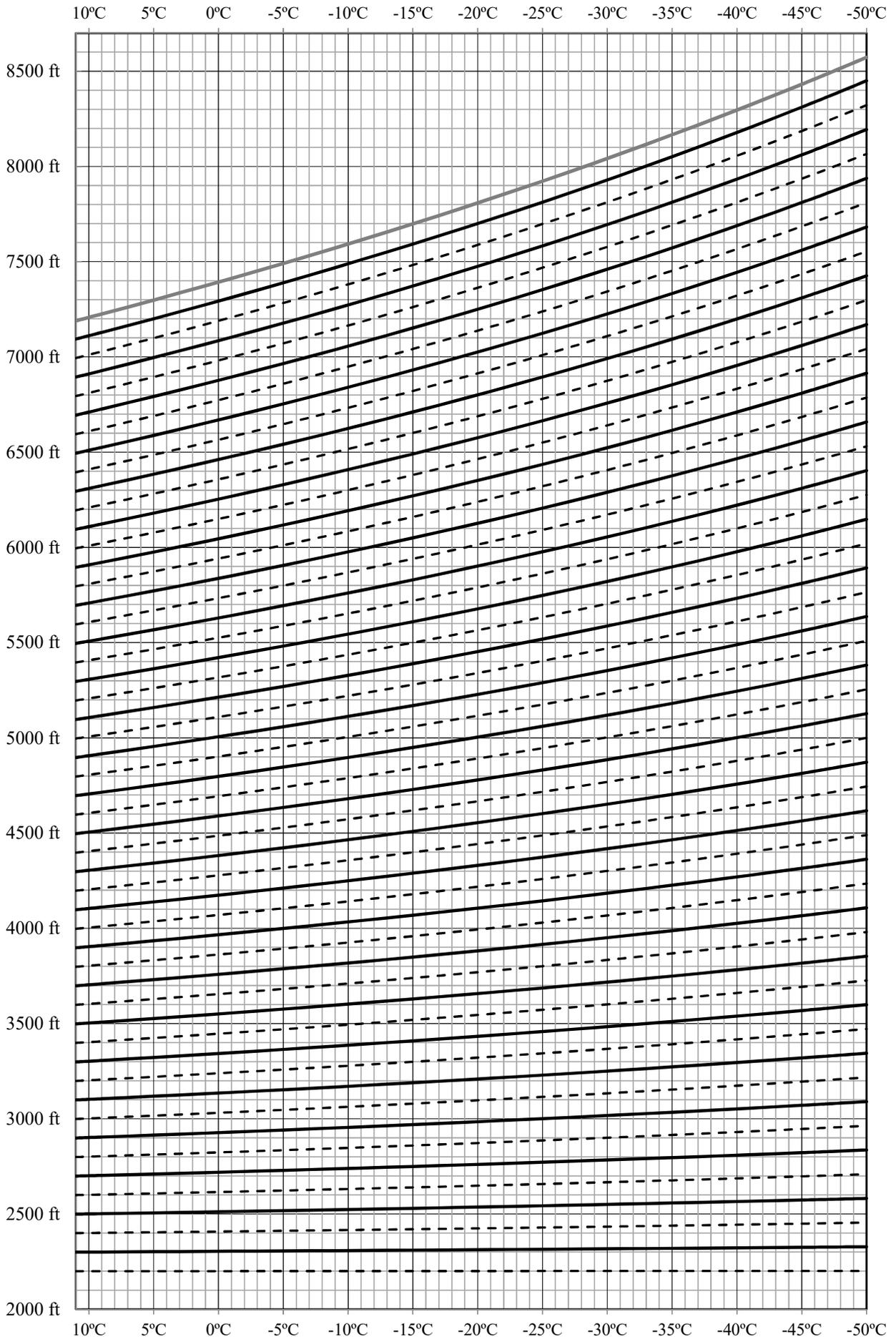
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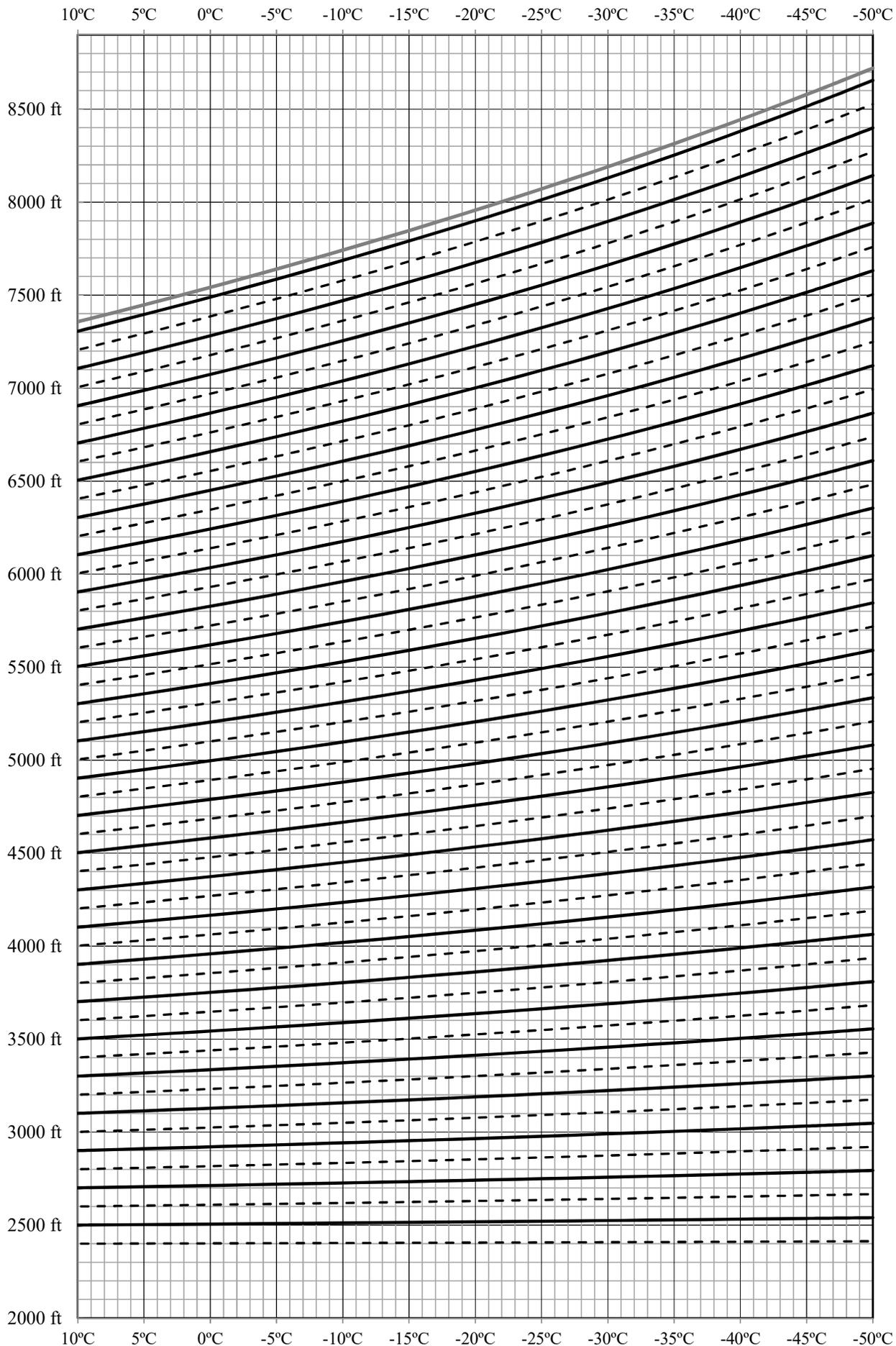
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Altitude
MSL



Altitude
MSL

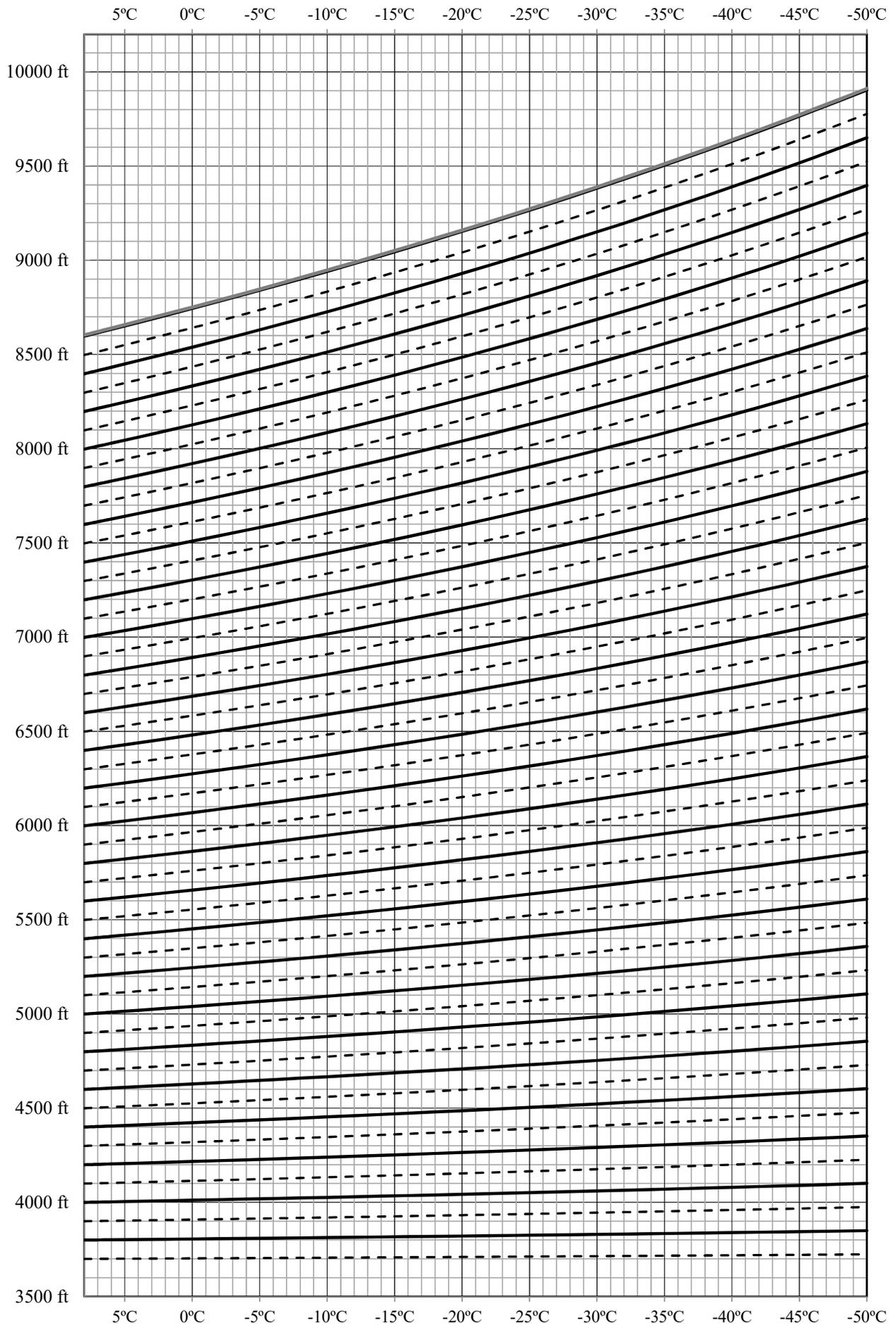


Airport: CYYC - Calgary, AB, CANADA. Station Elevation: 3606 feet.

ISA Standard Temperature: 7.85°C

Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL



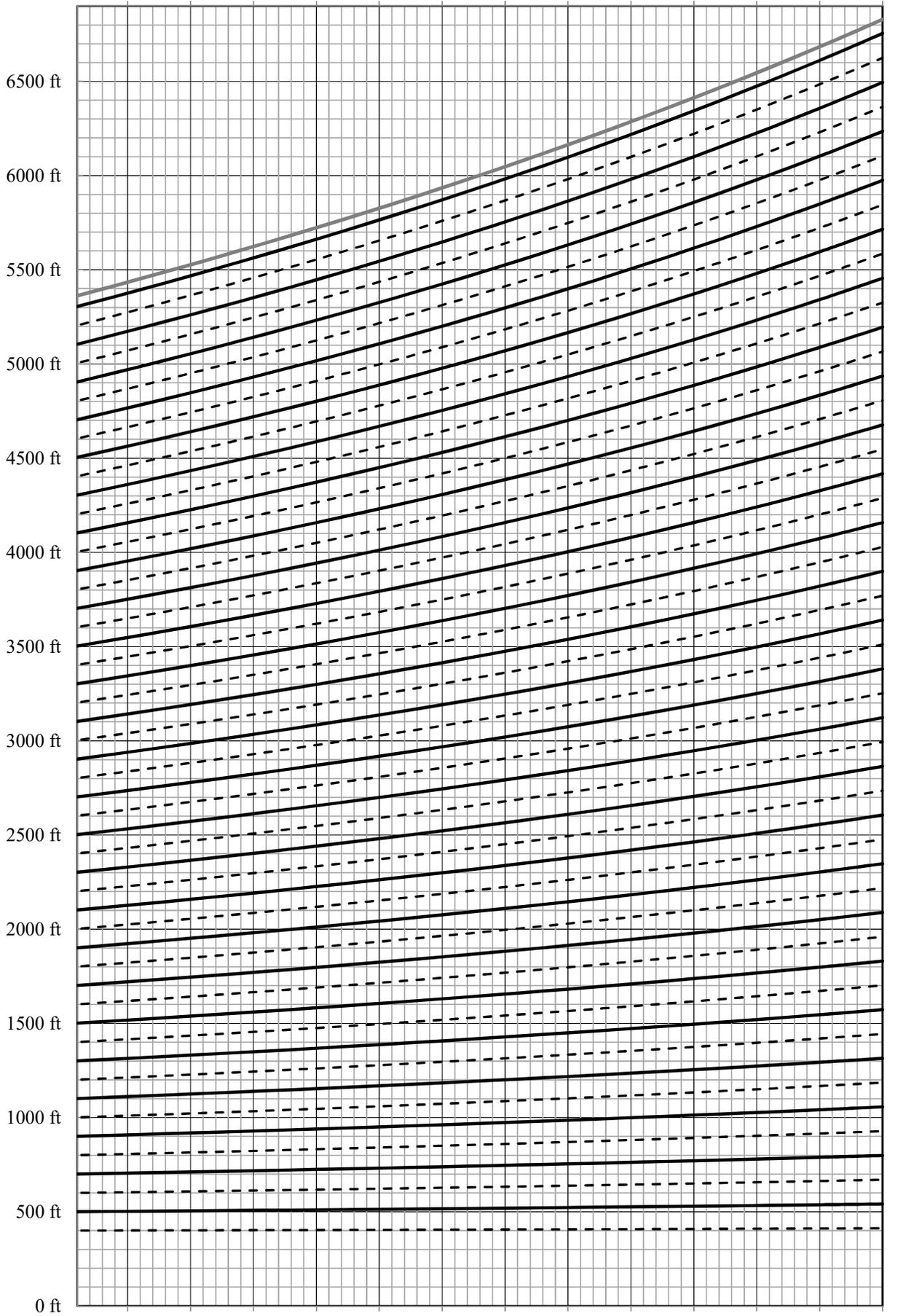


3 British Columbia Airports

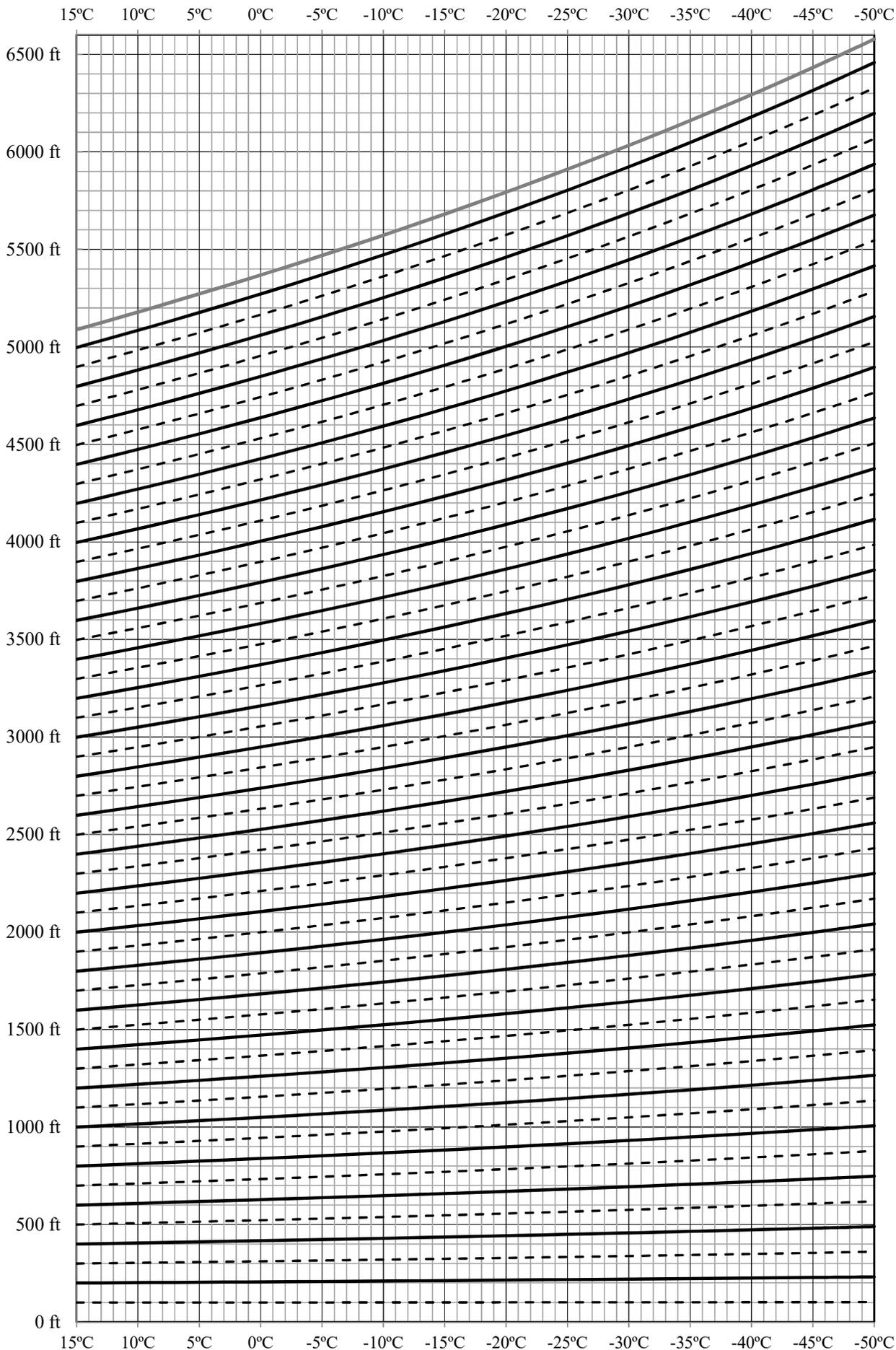
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Altitude
MSL

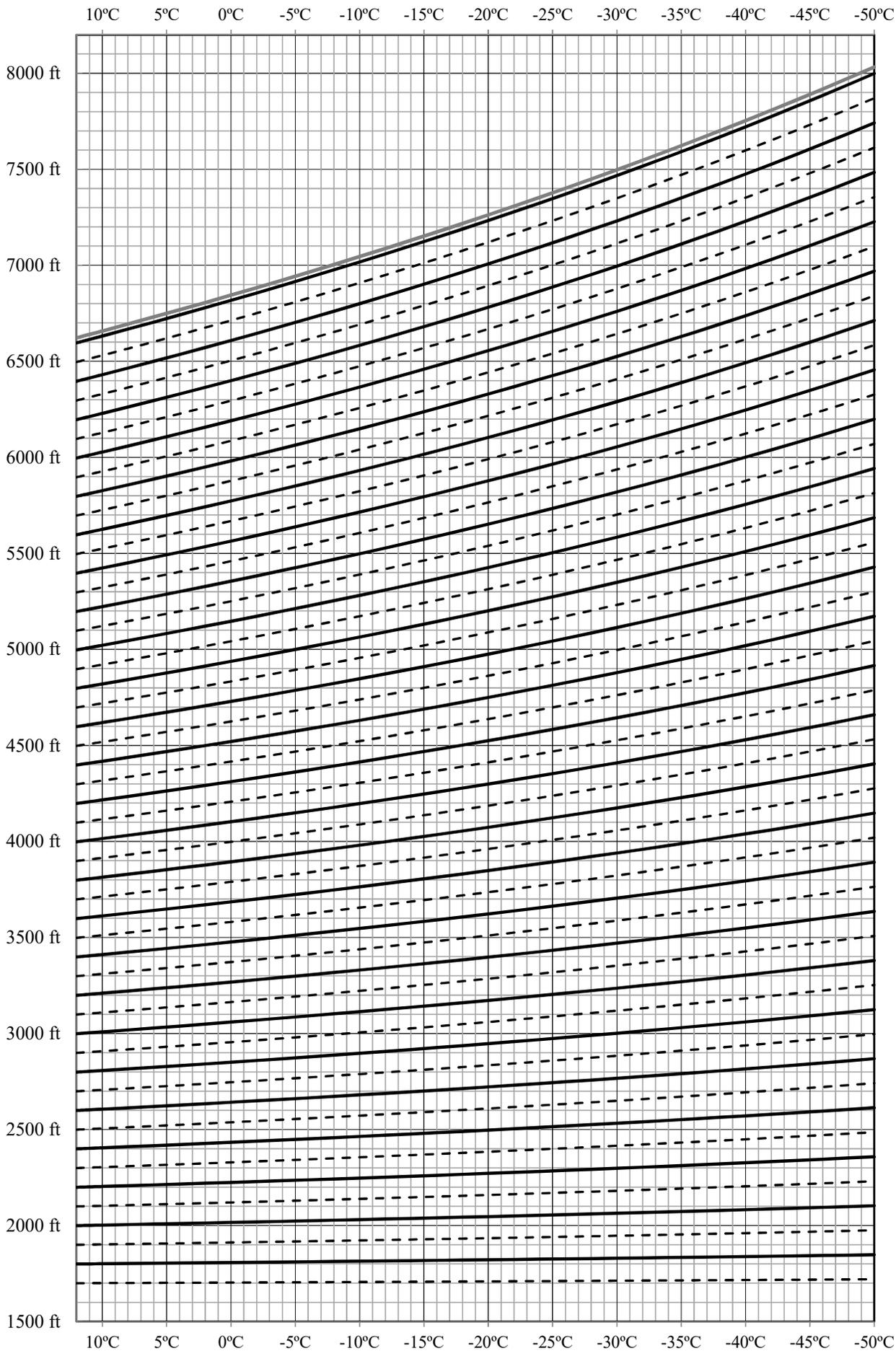
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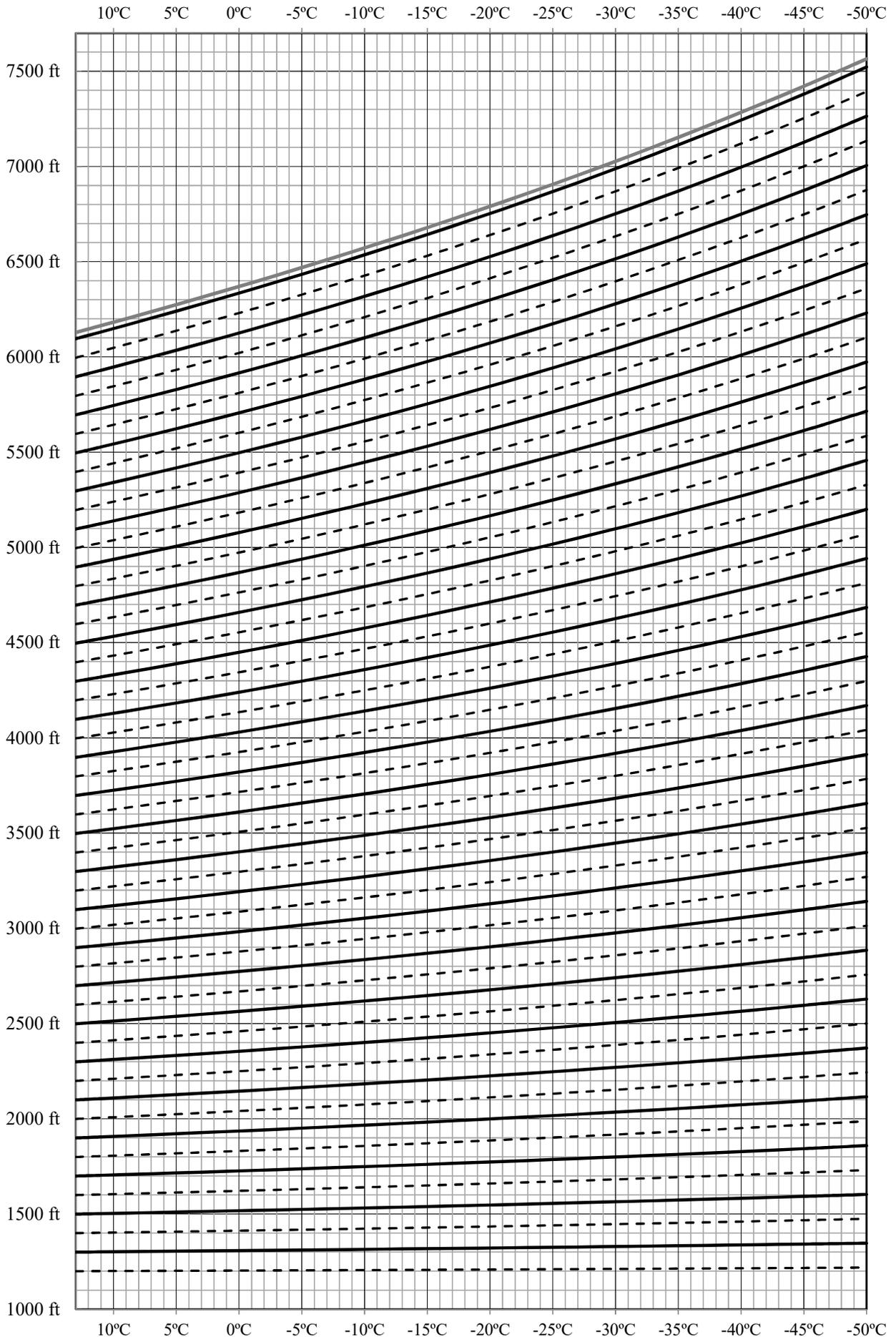
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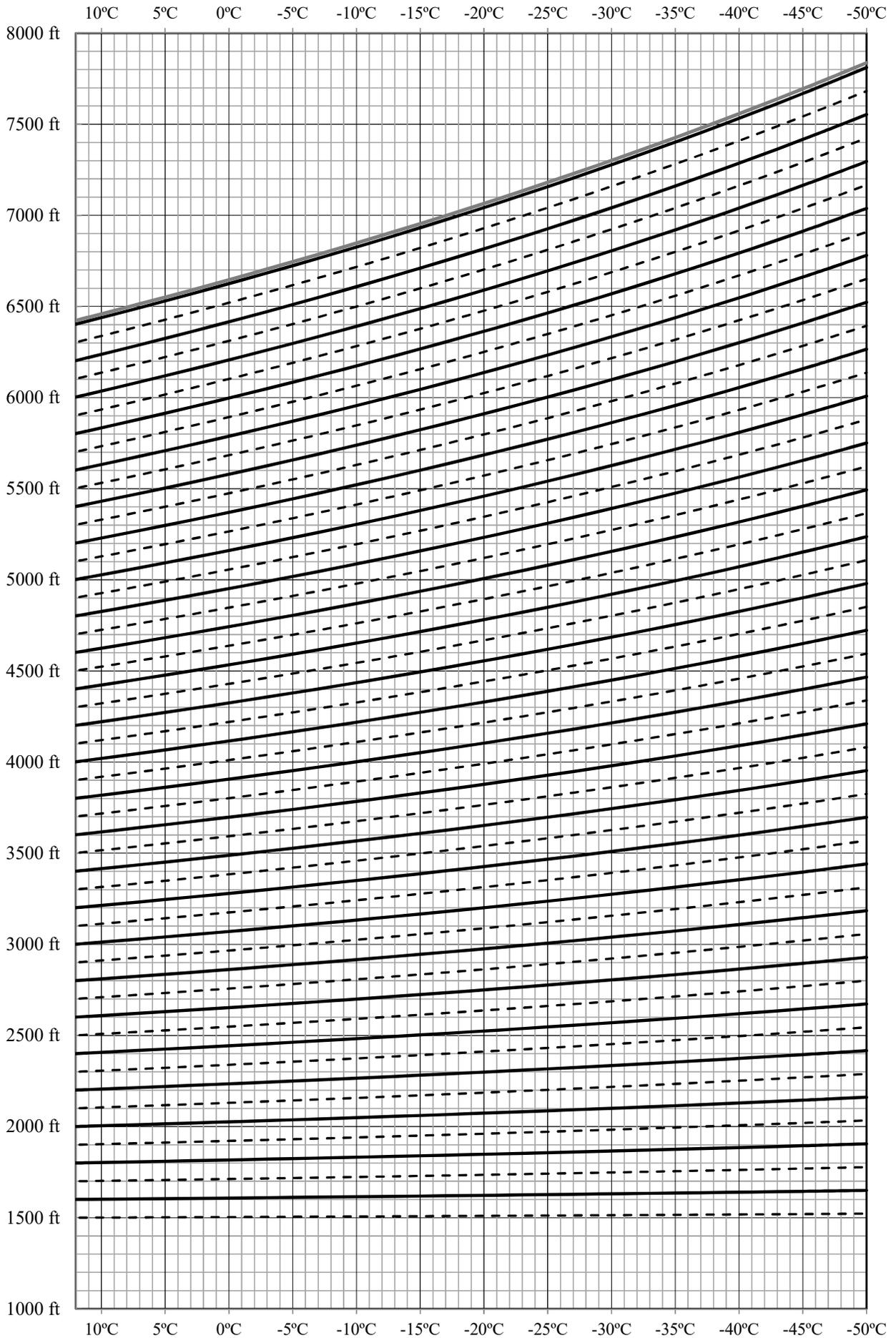
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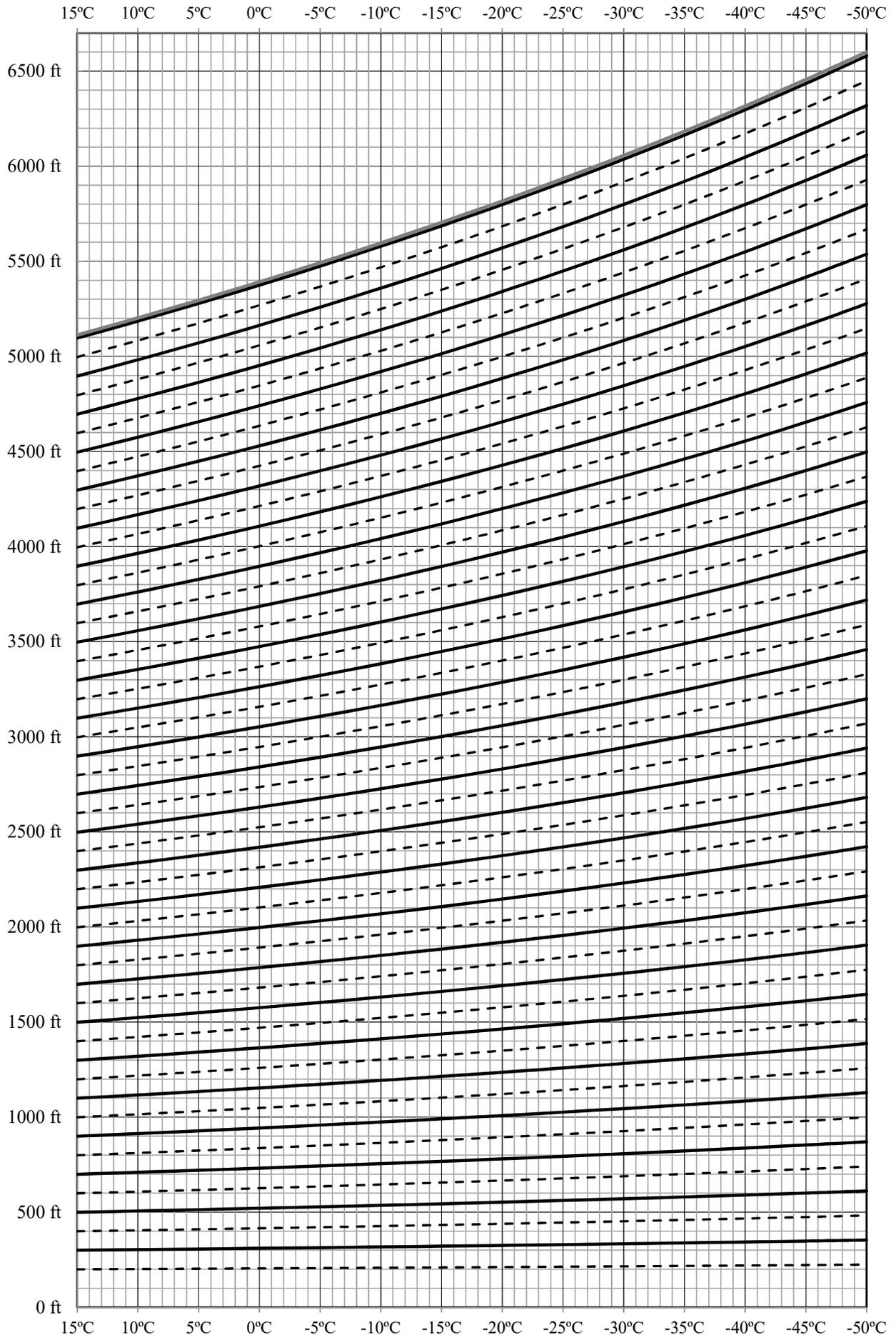


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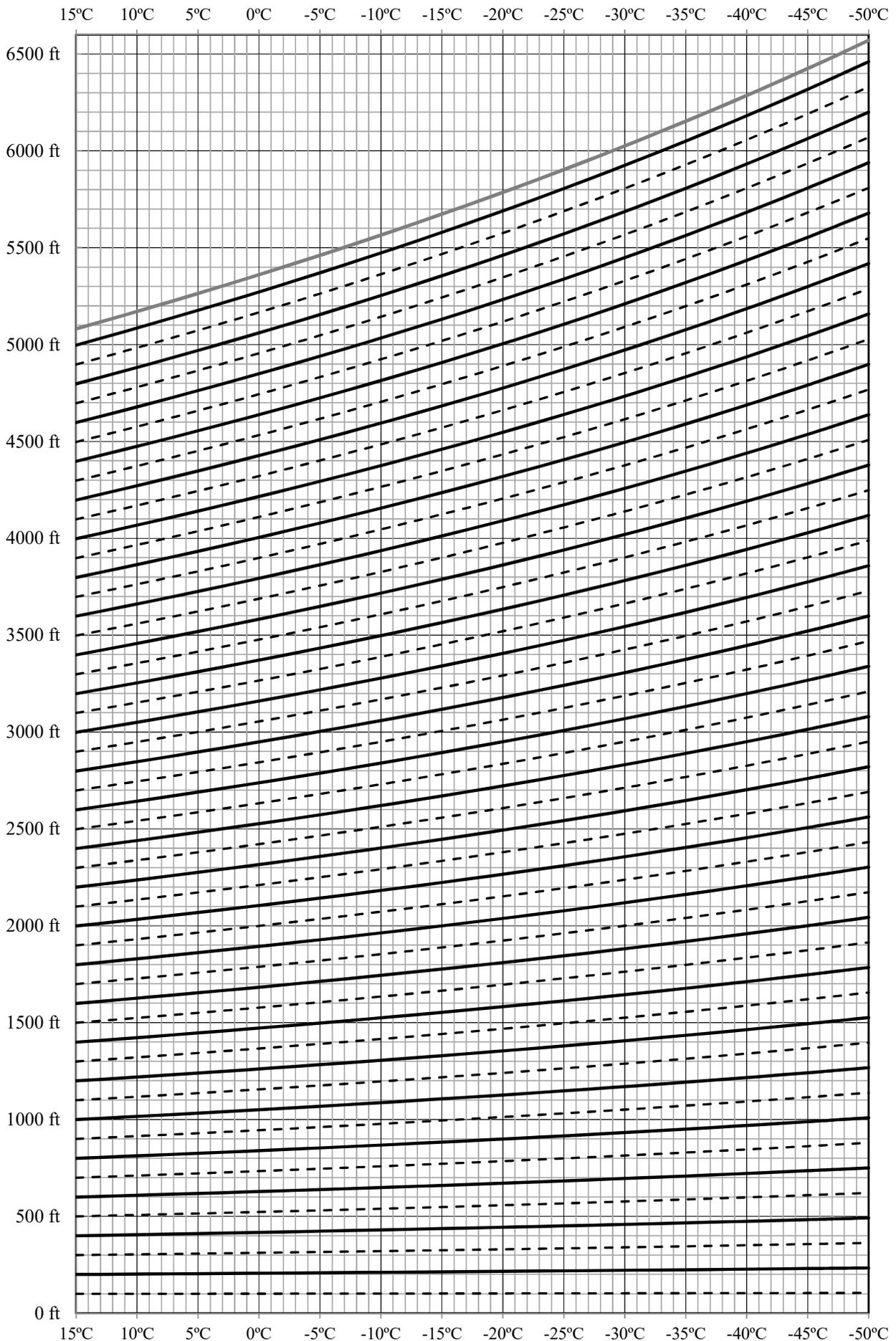


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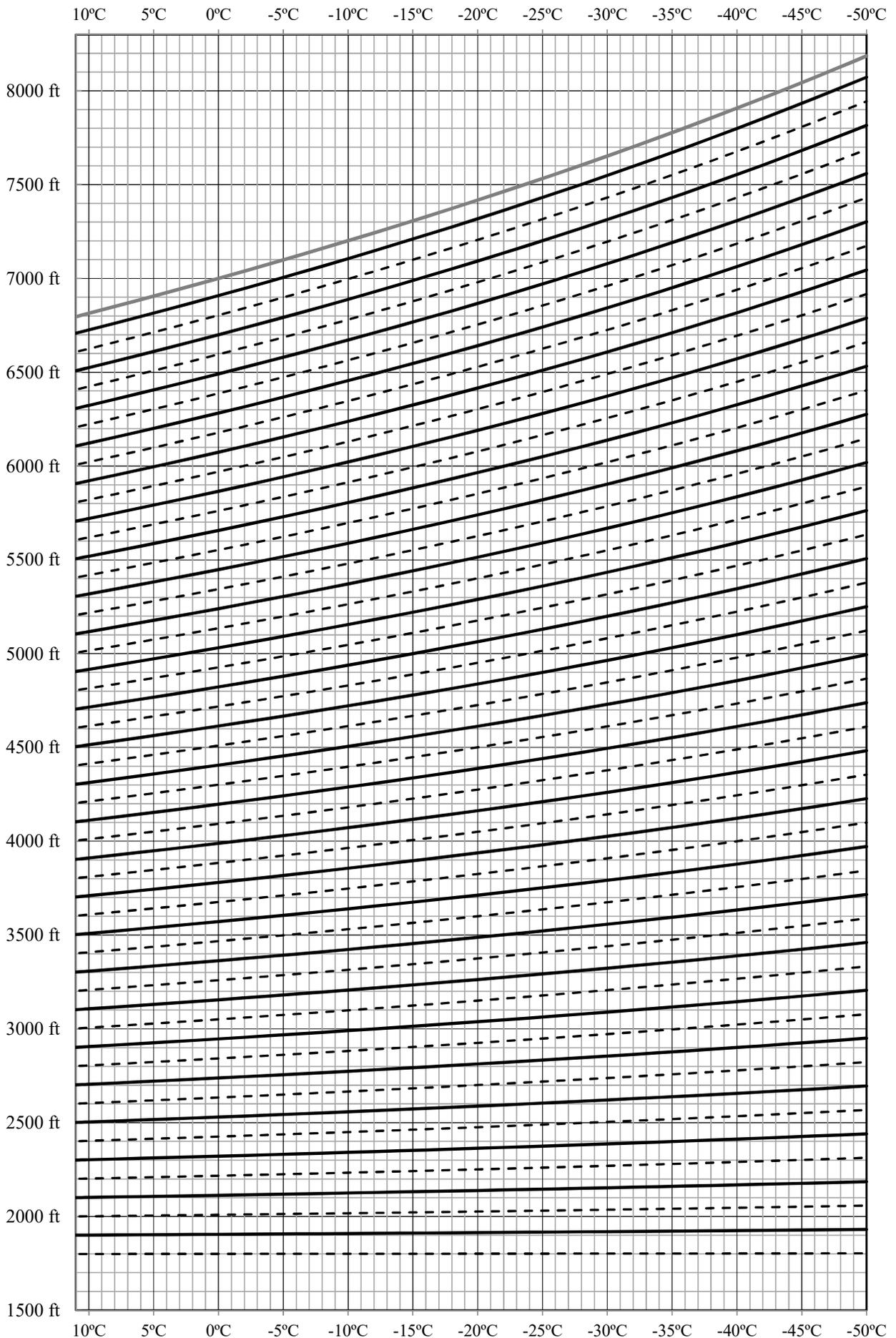
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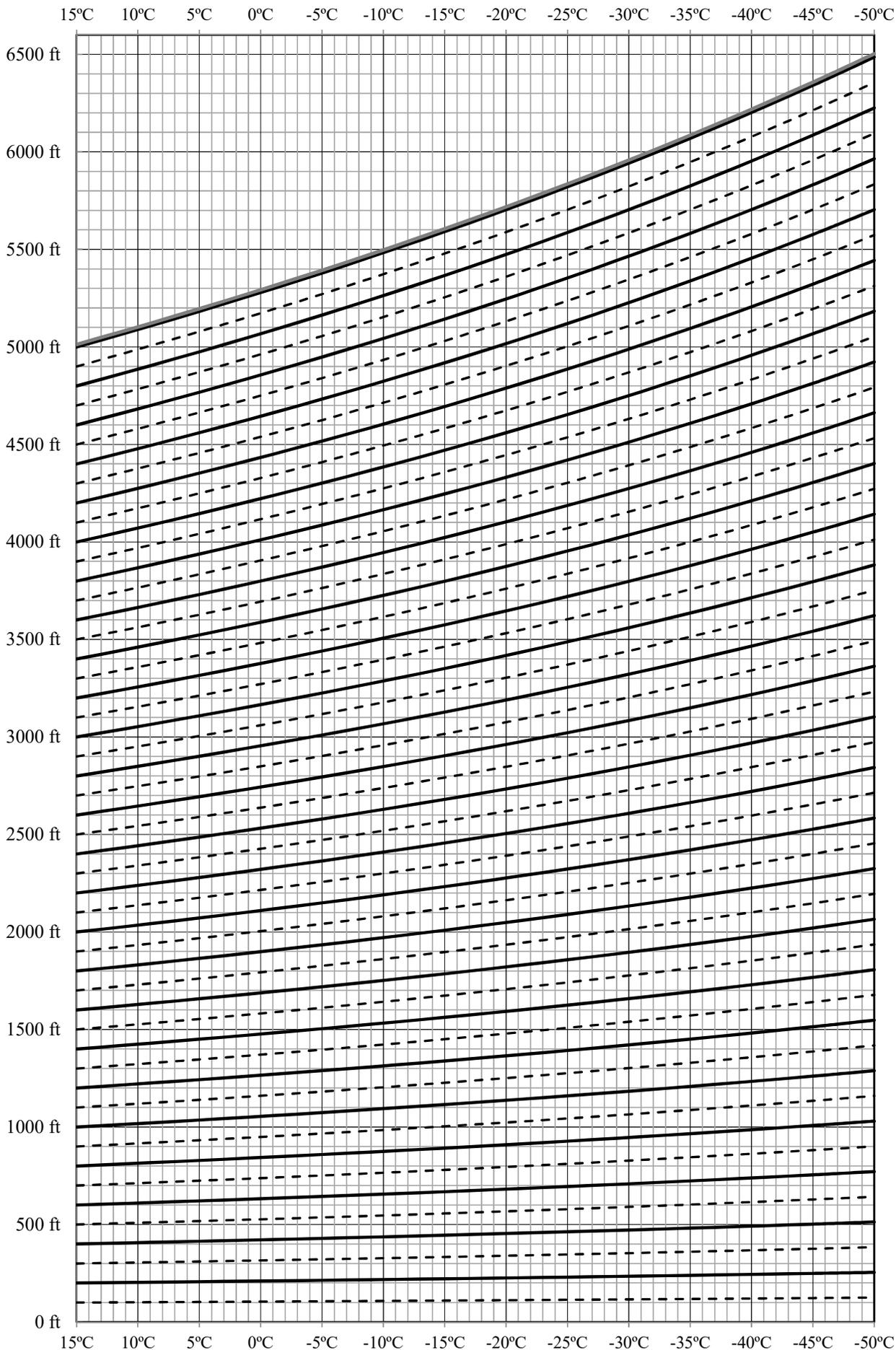
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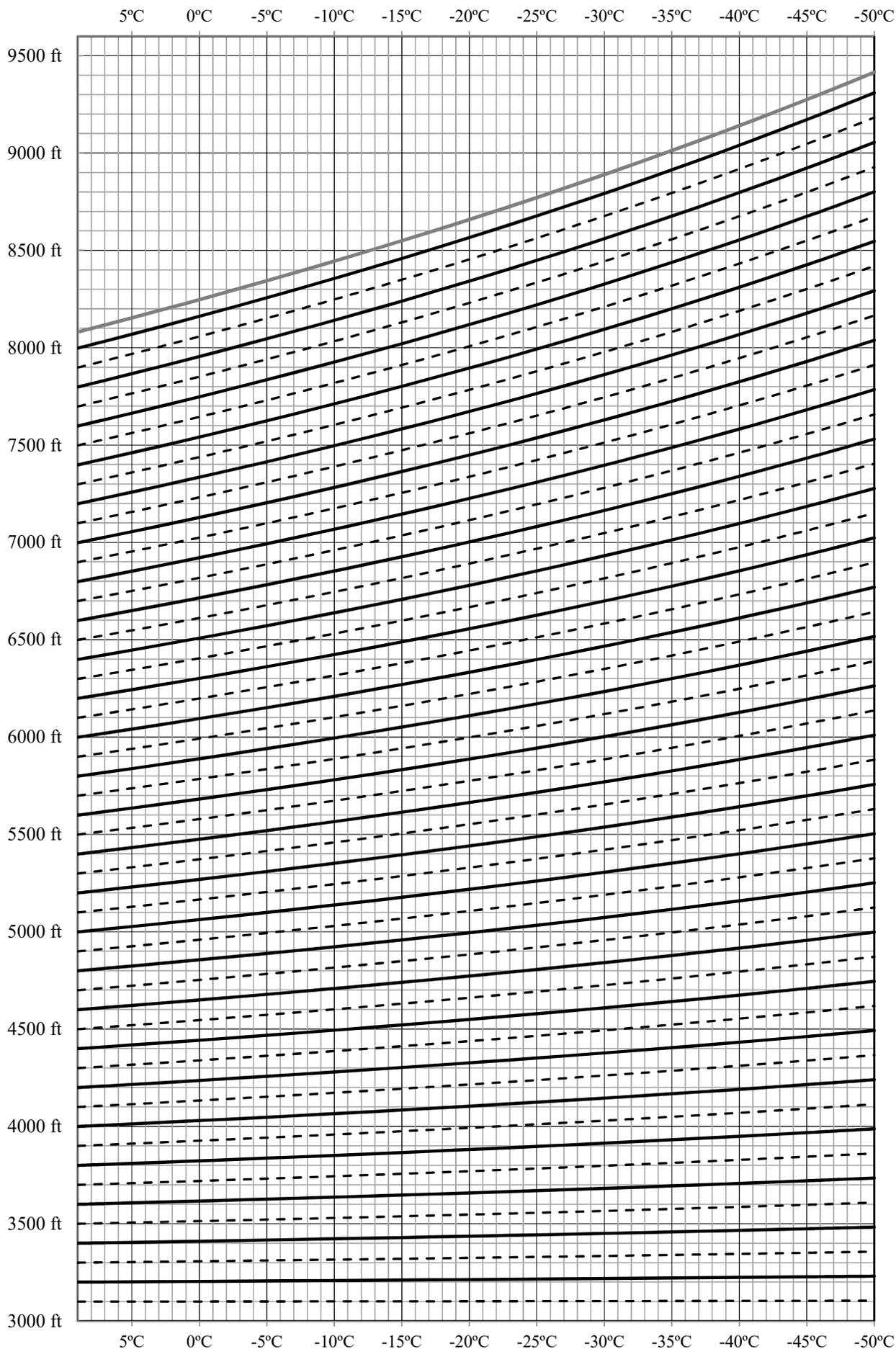
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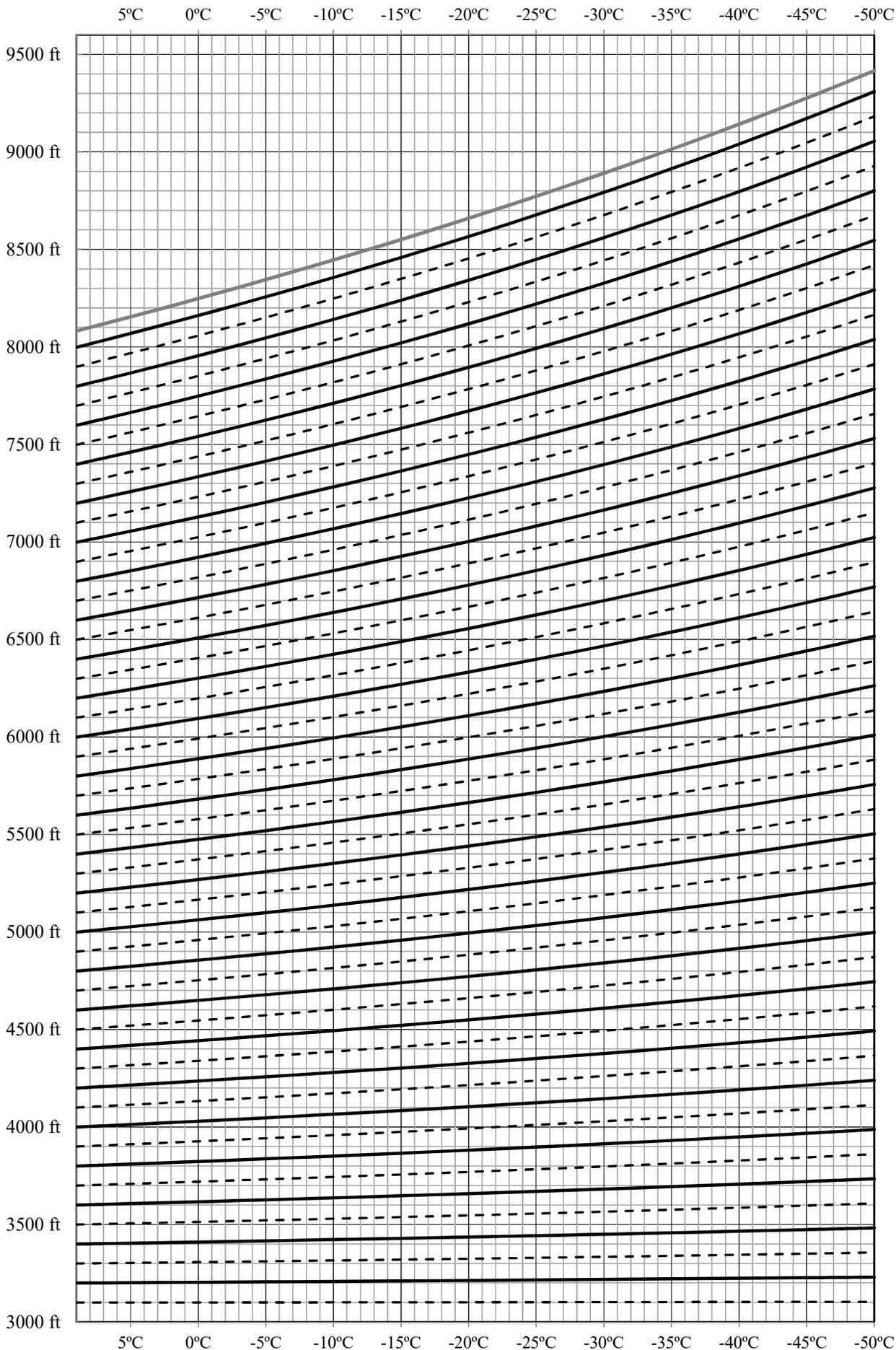
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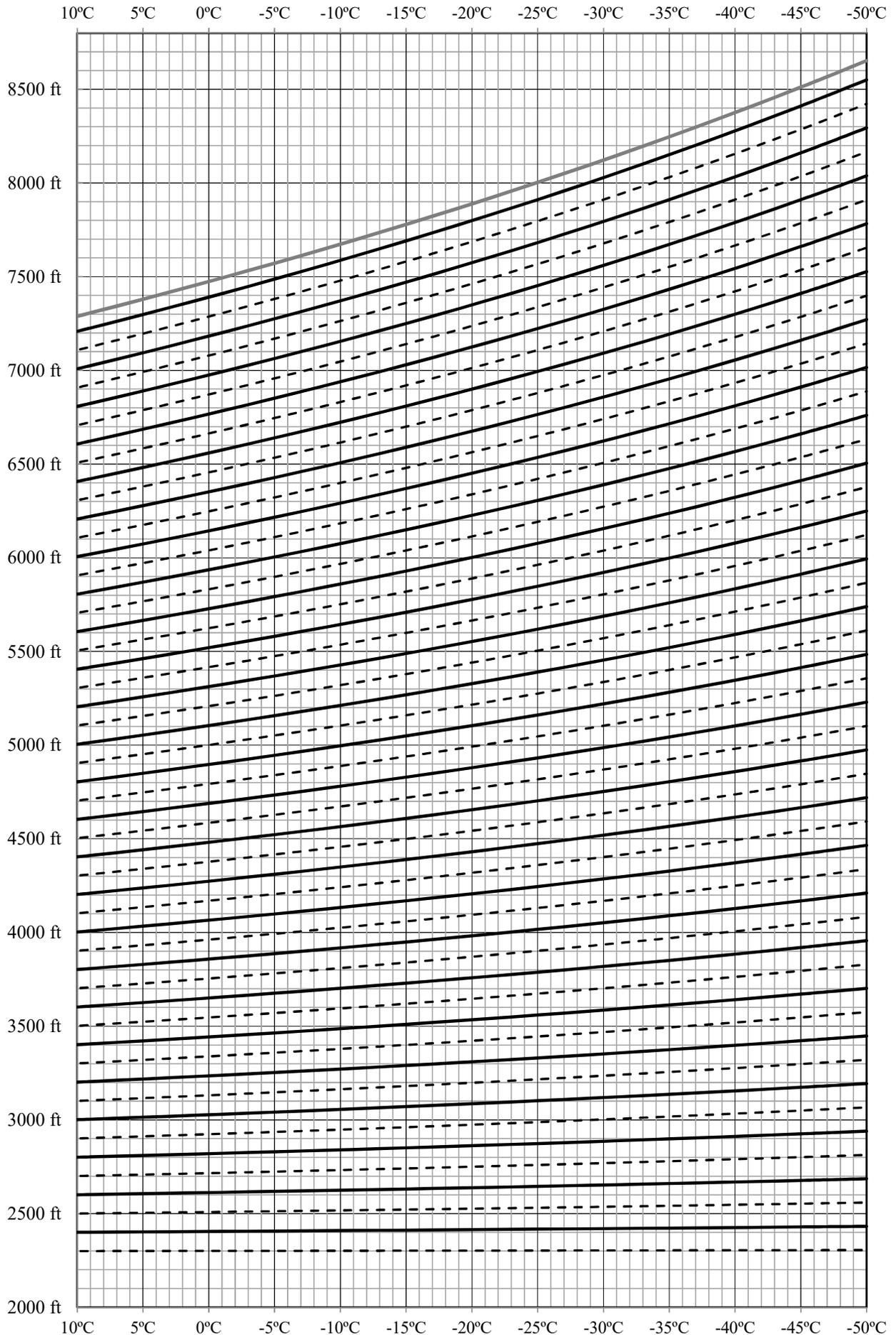


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Altitude
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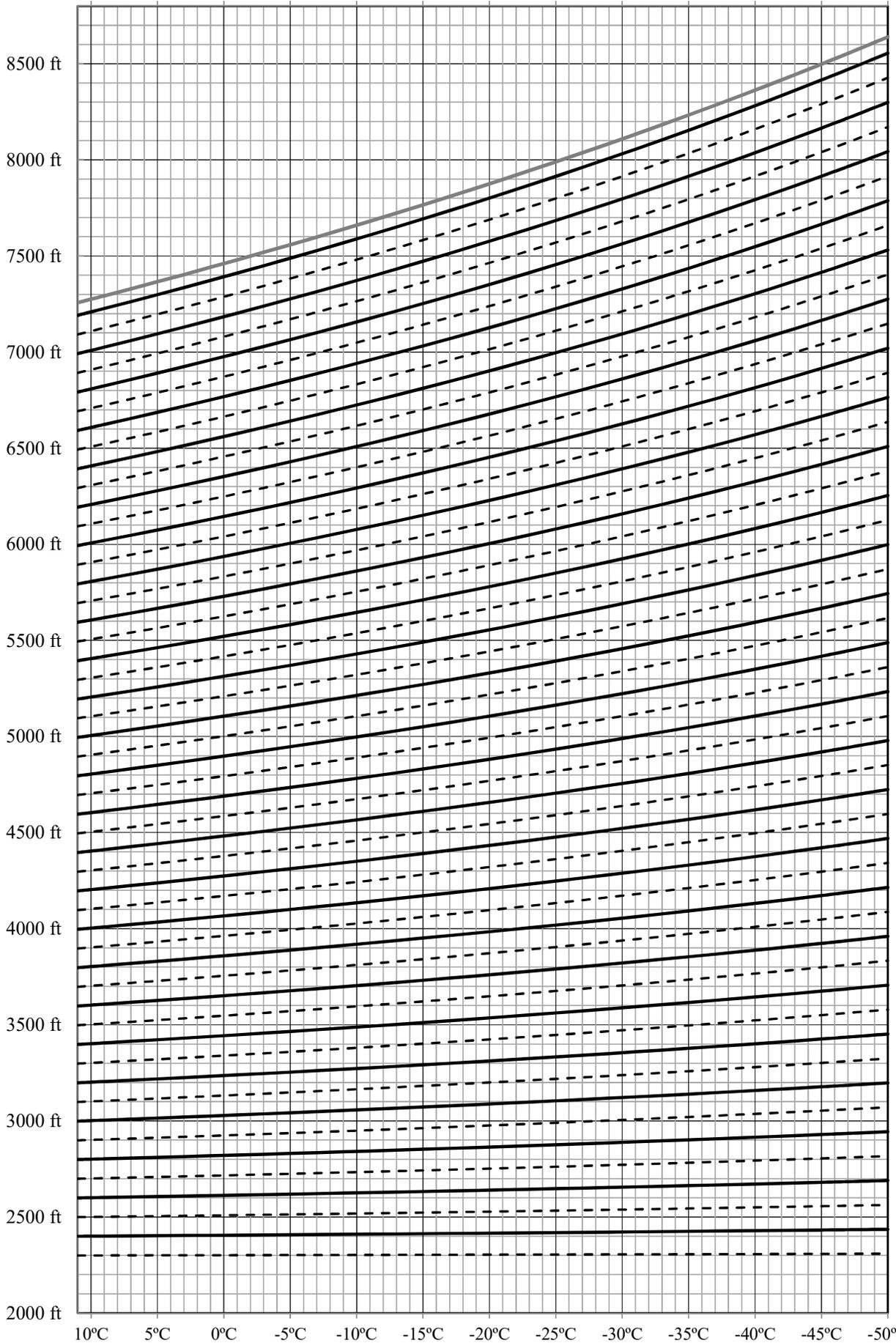
Altitude (MSL) Corrected for Cold Temperature



Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature

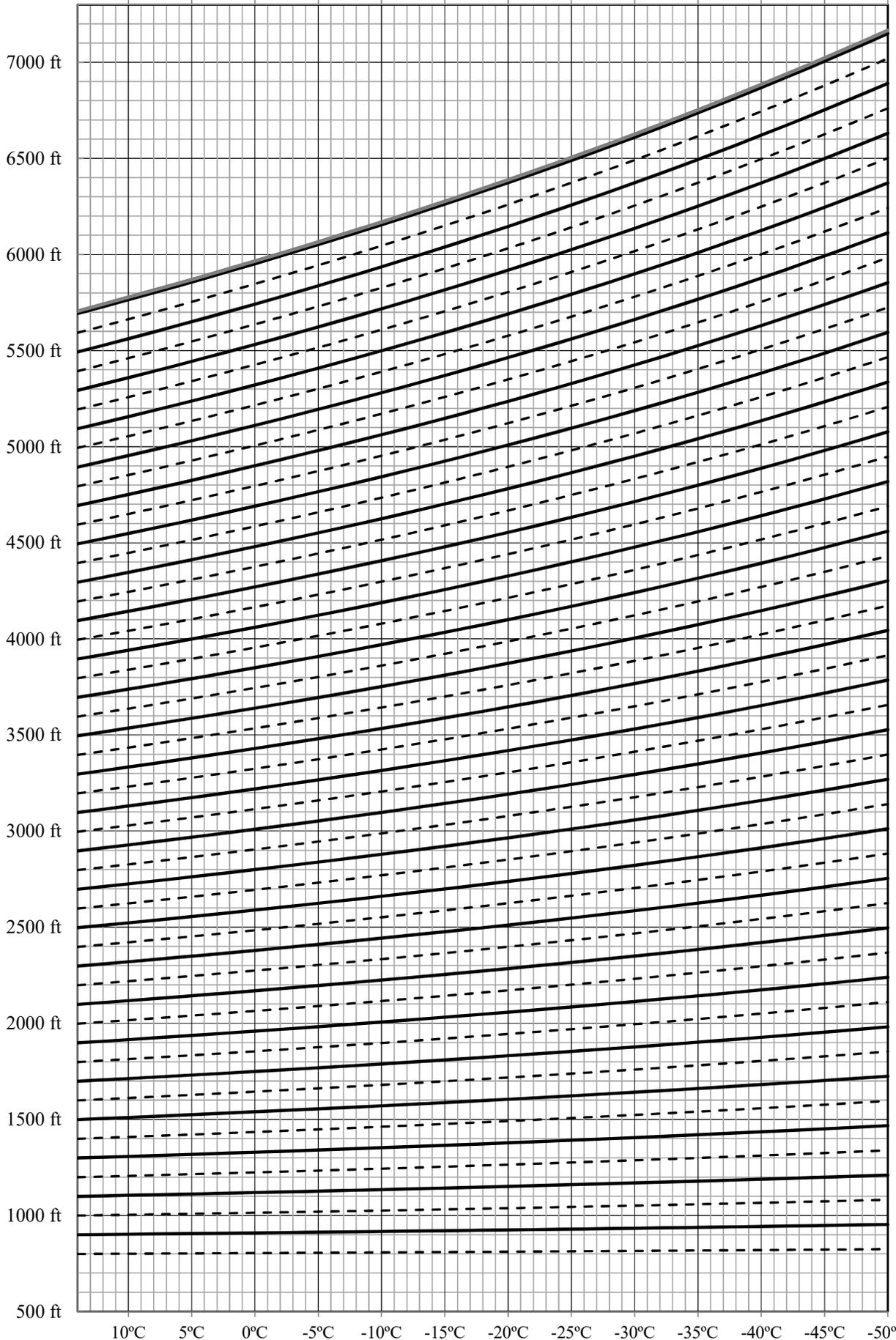
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Altitude
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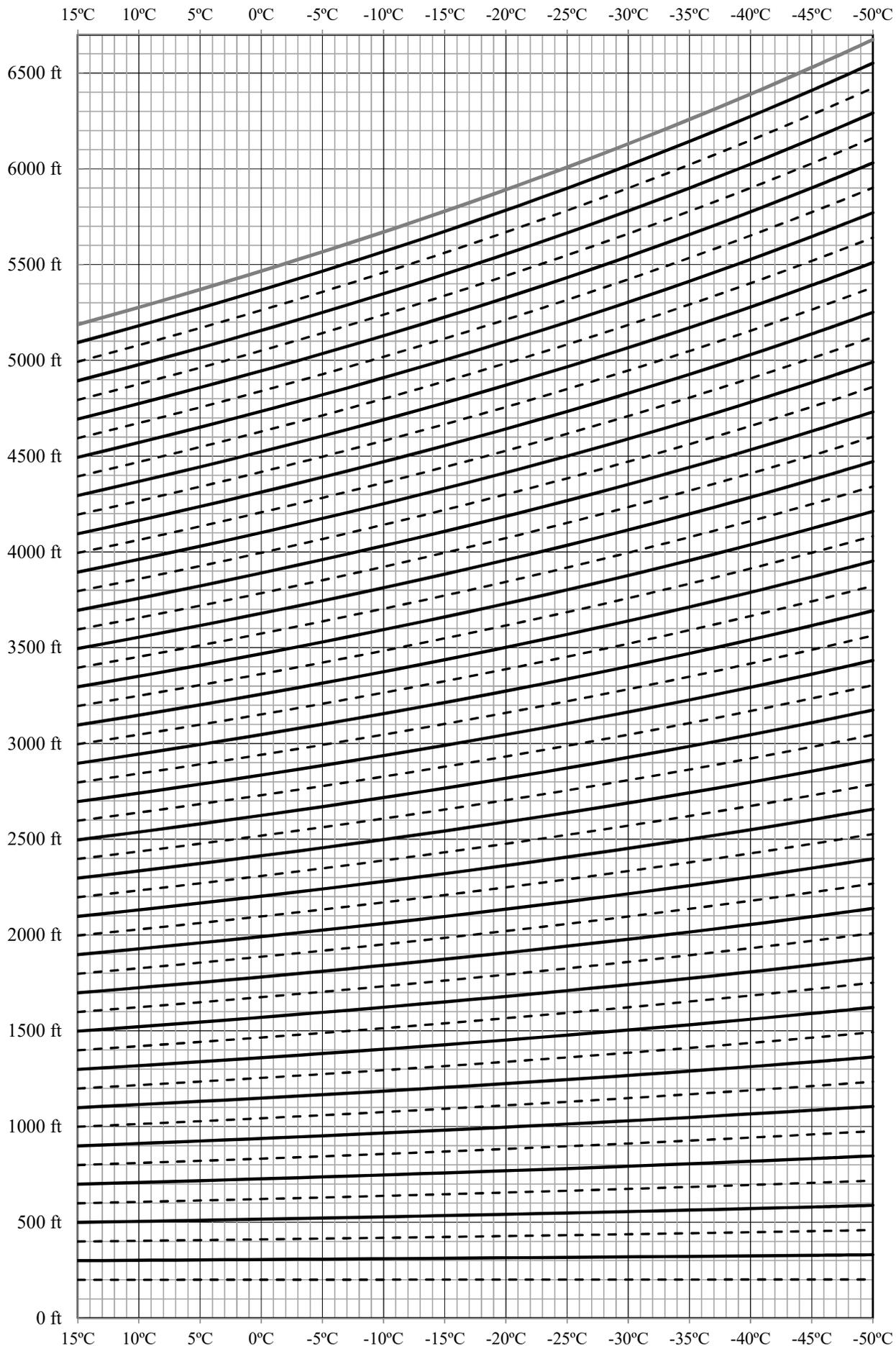
Altitude (MSL) Corrected for Cold Temperature

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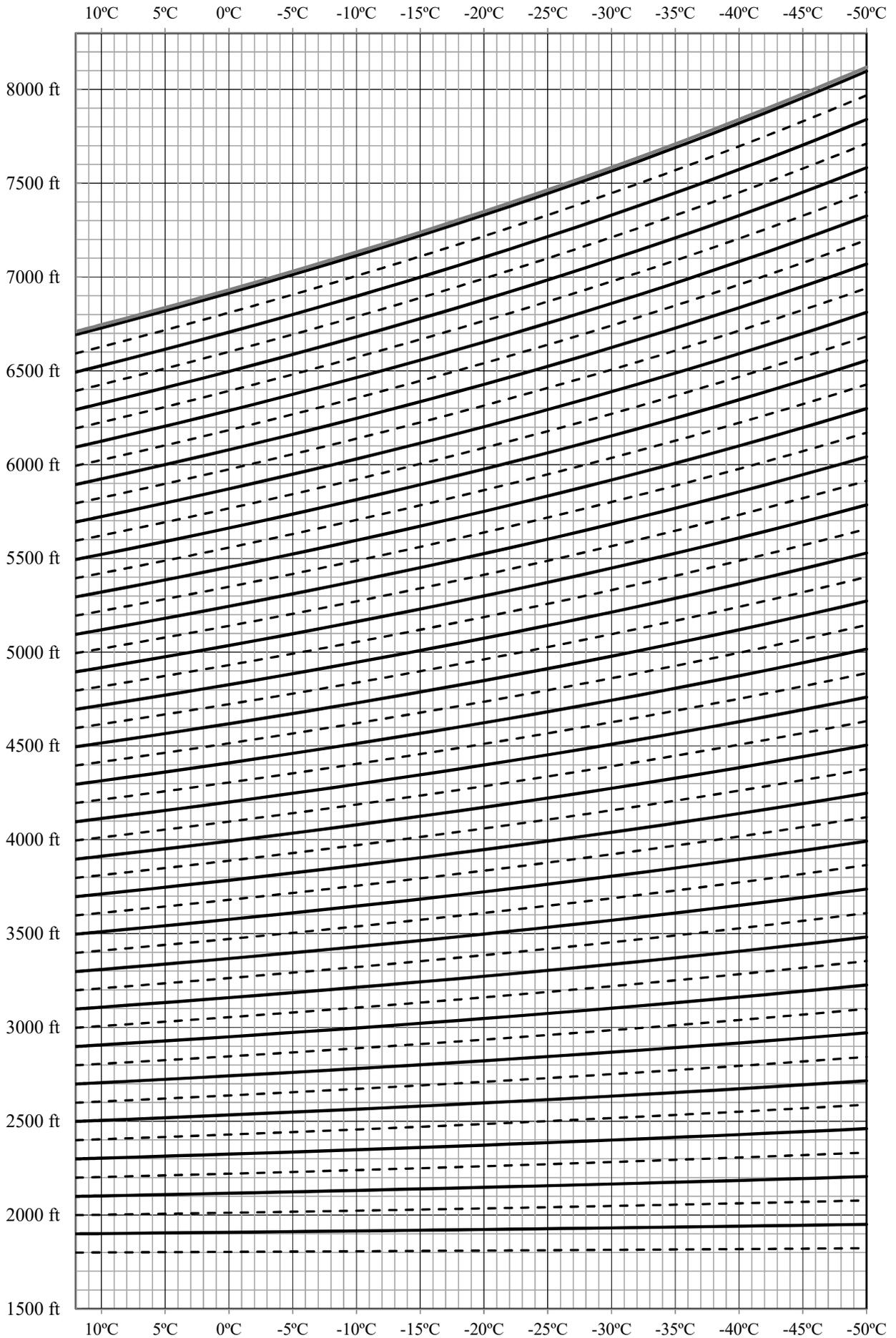


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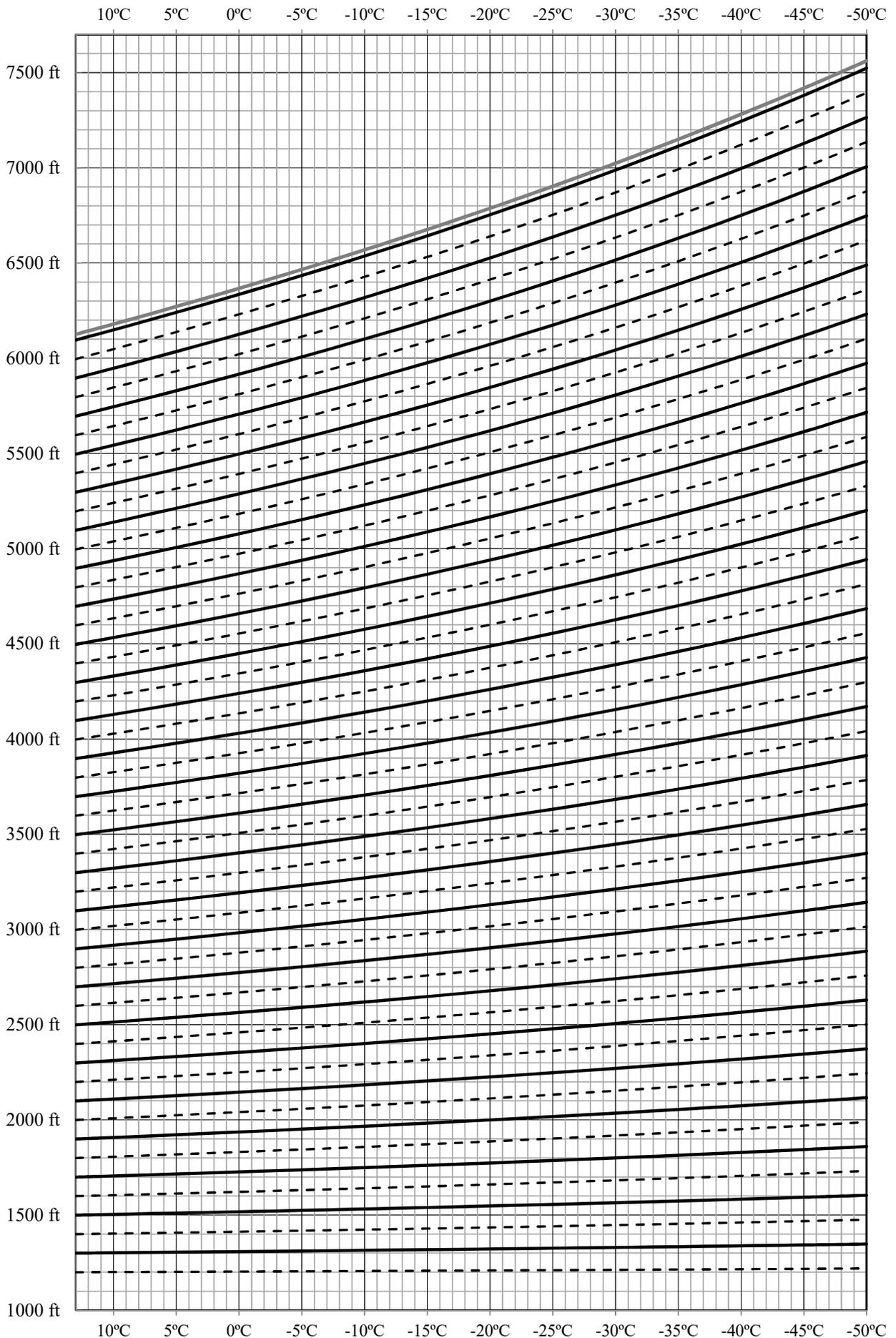
Altitude (MSL) Corrected for Cold Temperature



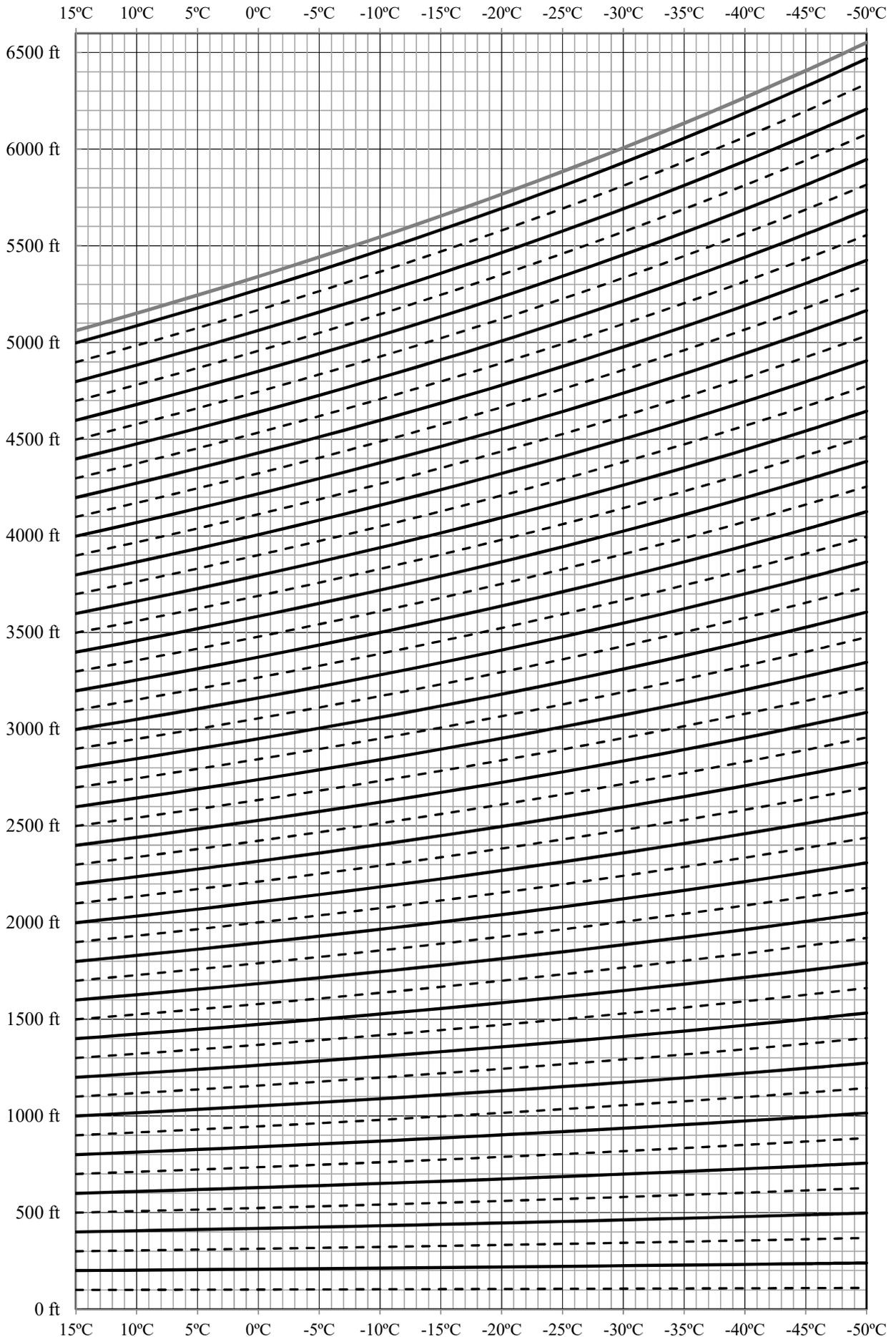
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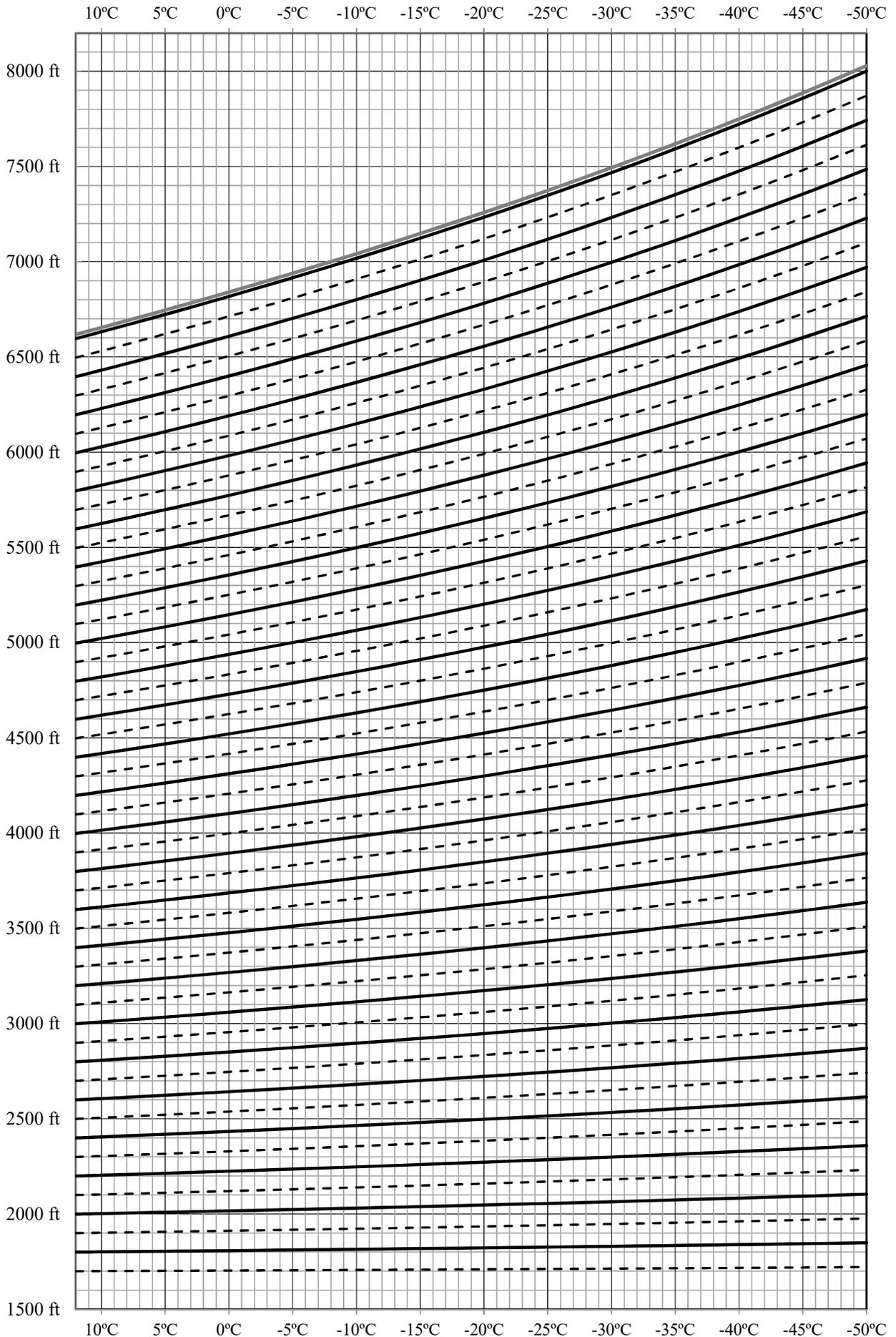
Altitude
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Altitude
MSL



Altitude
MSL





4 Manitoba Airports

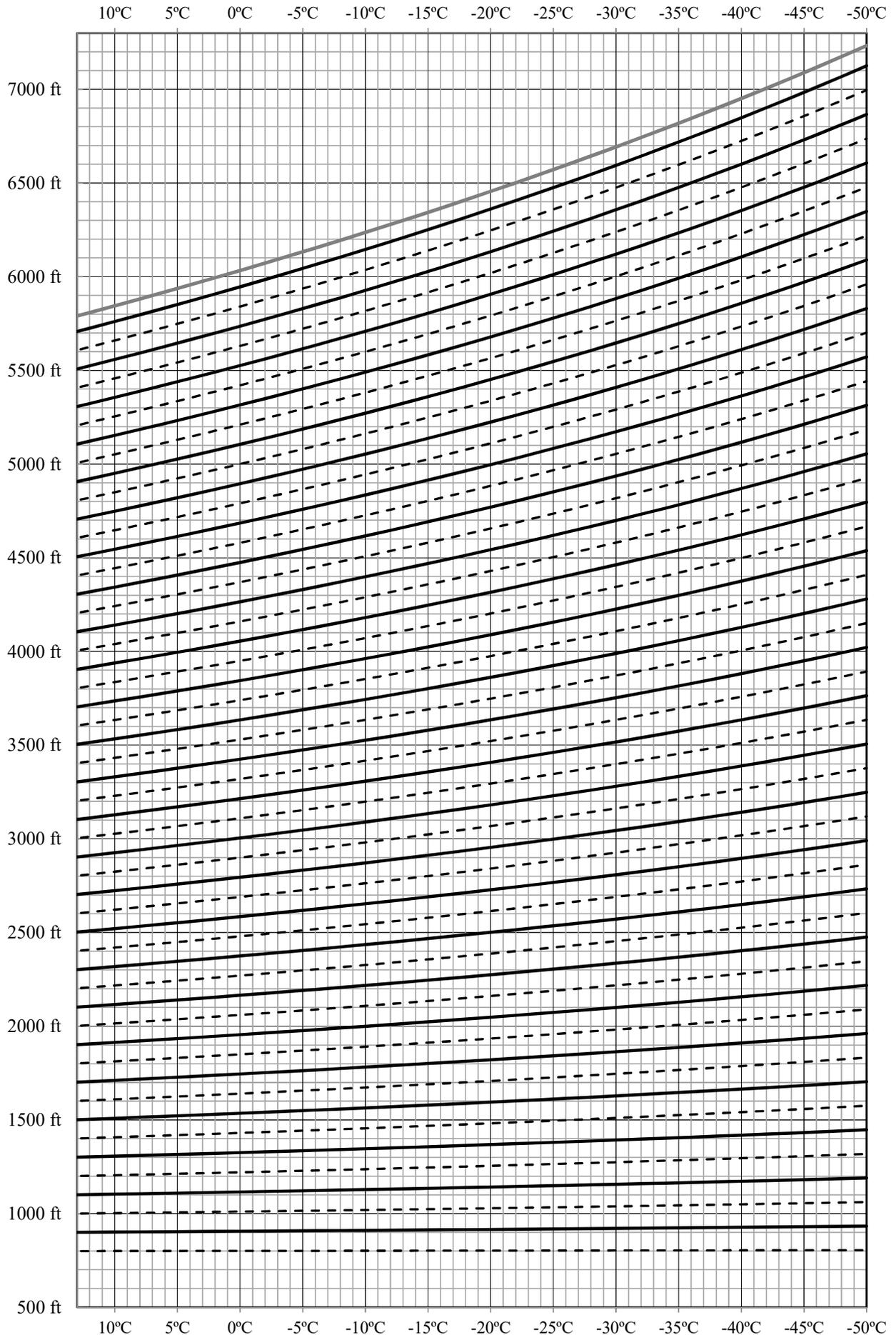
4.1 CYWG - WINNIPEG, MB, CANADA.....35

Airport: CYWG - Winnipeg, MB, CANADA. Station Elevation: 783 feet.

ISA Standard Temperature: 13.45°C

Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature



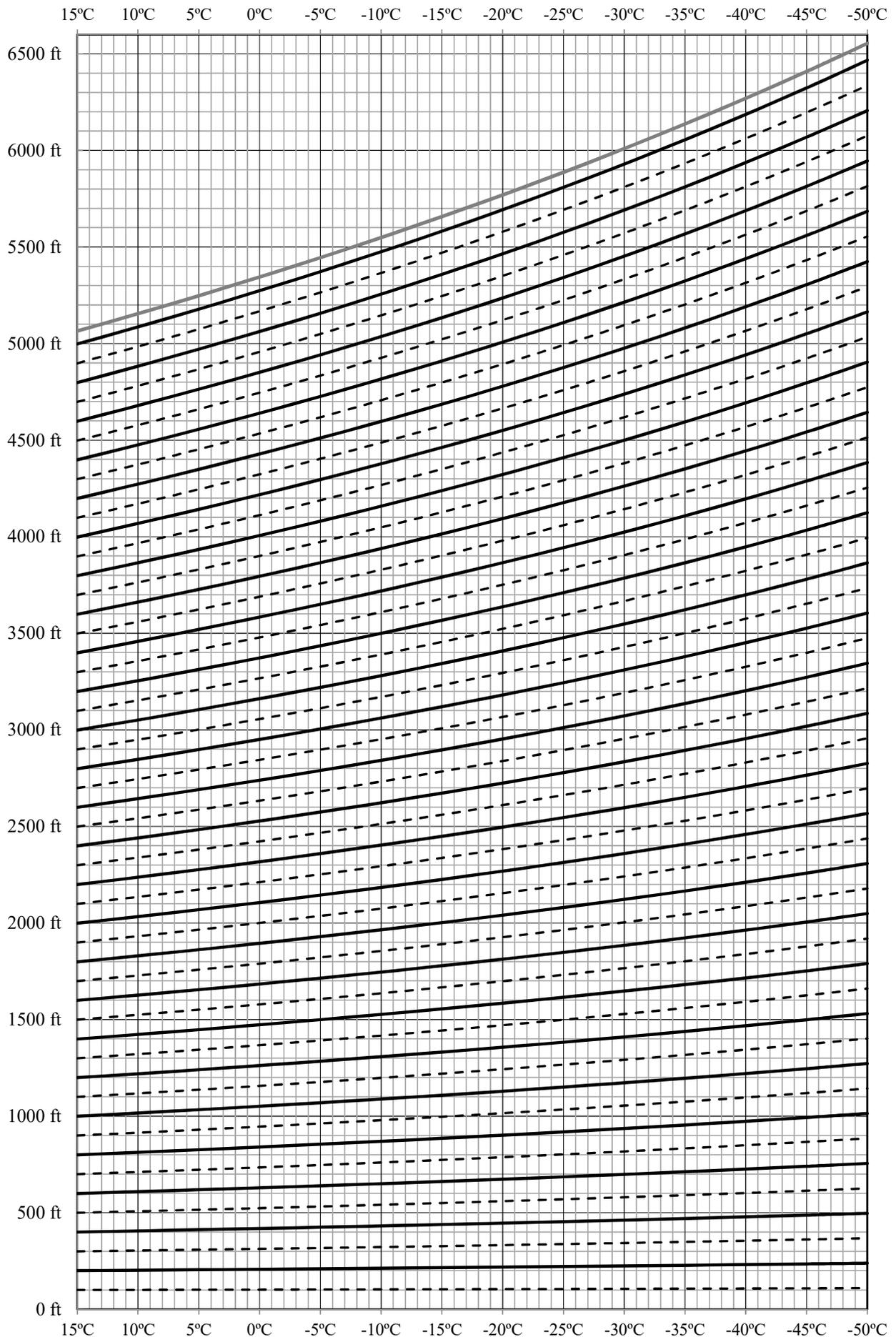


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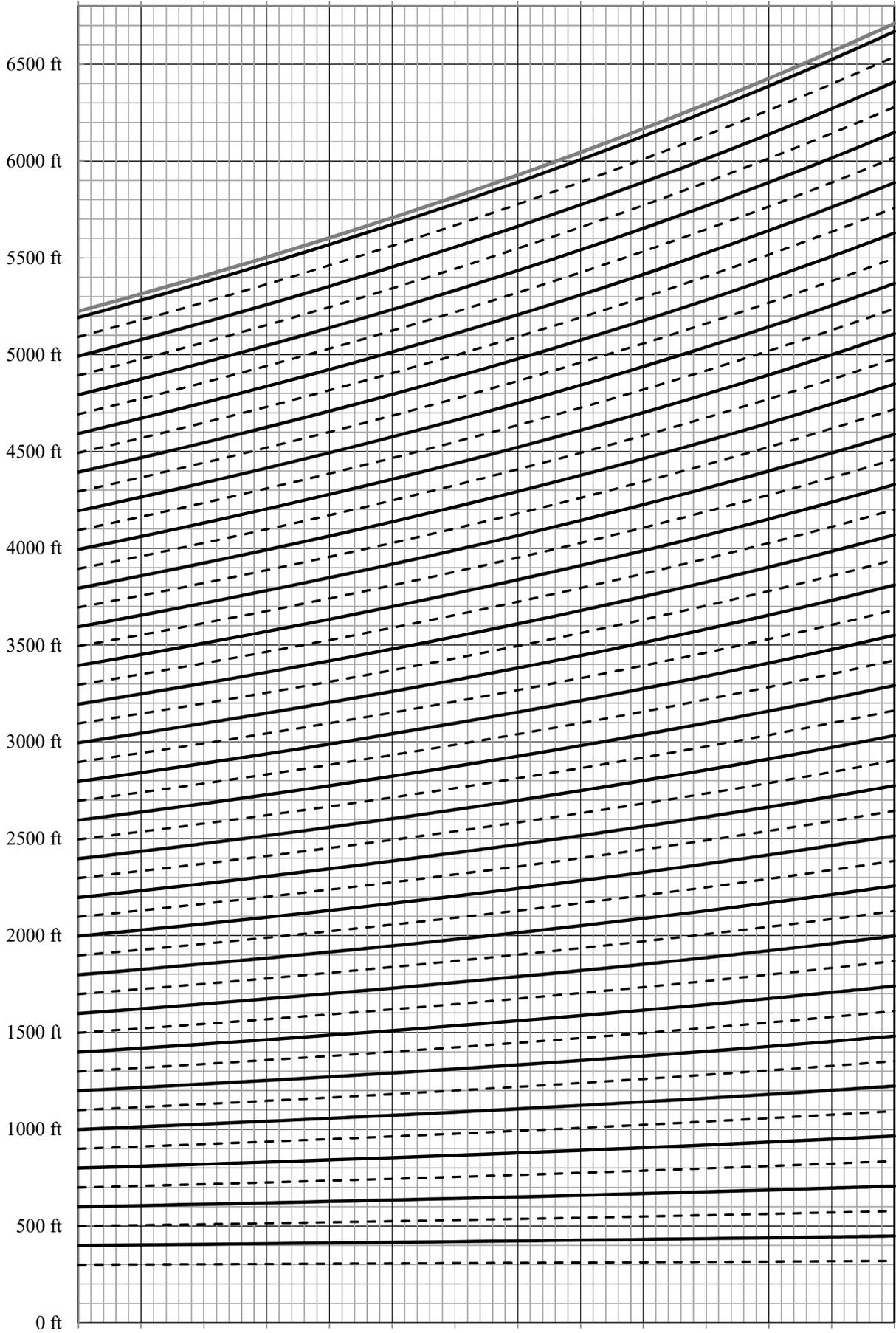
Altitude
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Altitude (MSL) Corrected for Cold Temperature



Altitude
MSL

15°C 10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C



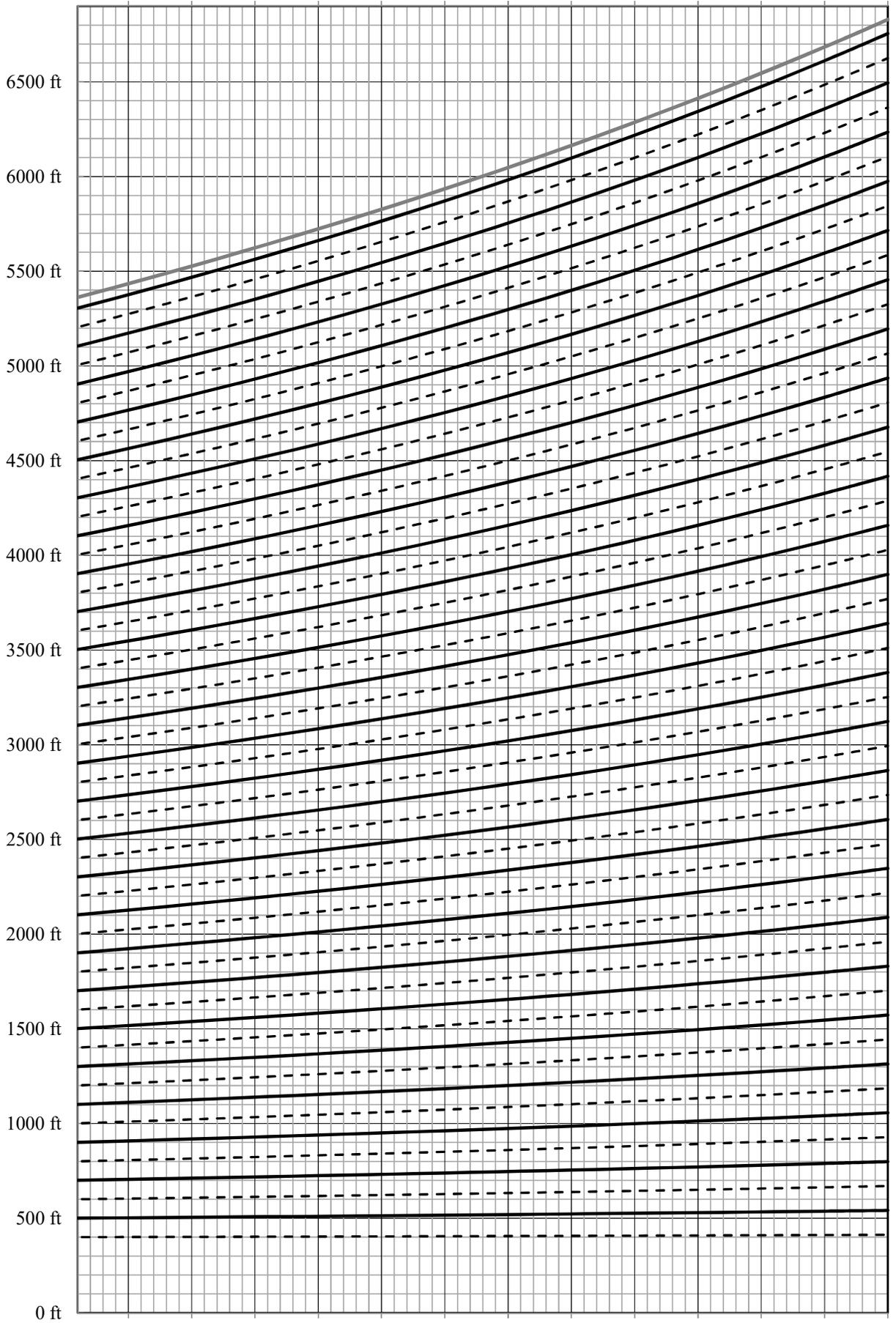
Airport: CYSJ - Saint John, NB, CANADA. Station Elevation: 357 feet.

ISA Standard Temperature: 14.29°C

Altitude
MSL

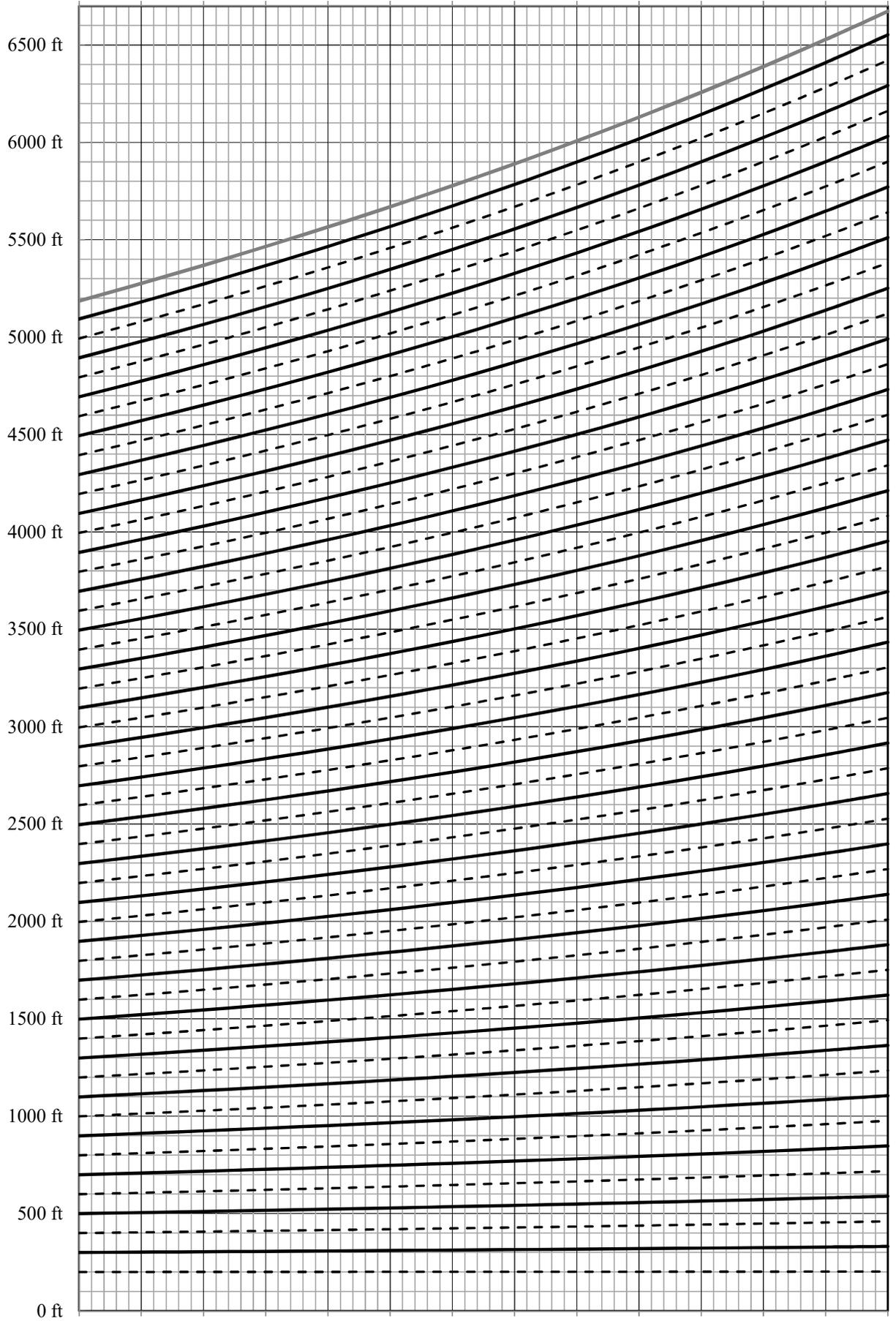
Altitude (MSL) Corrected for Cold Temperature

10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C



Altitude
MSL

15°C 10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C

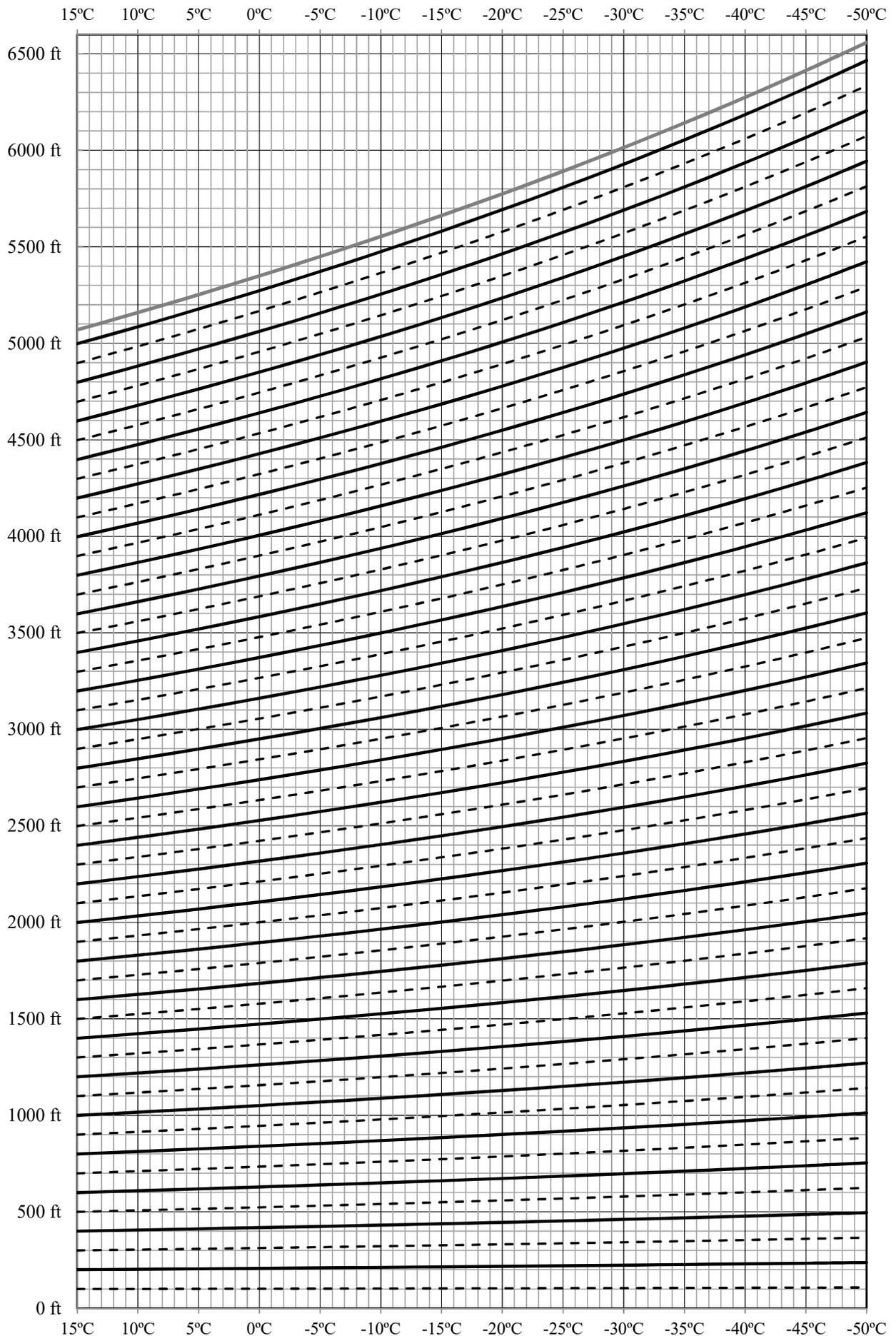




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Altitude
MSL

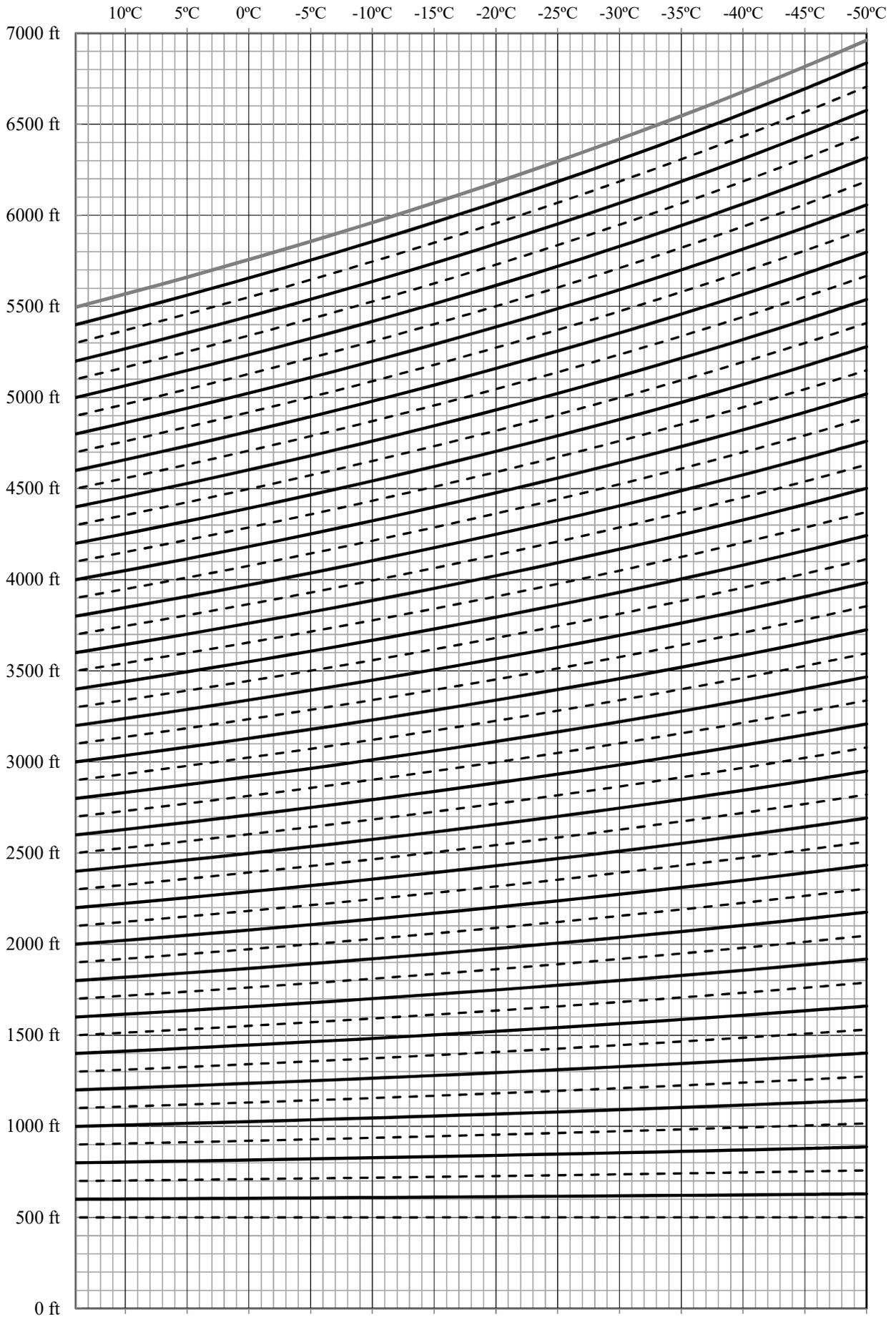


Airport: CYQX - Gander, NL, CANADA. Station Elevation: 496 feet.

ISA Standard Temperature: 14.02°C

Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL

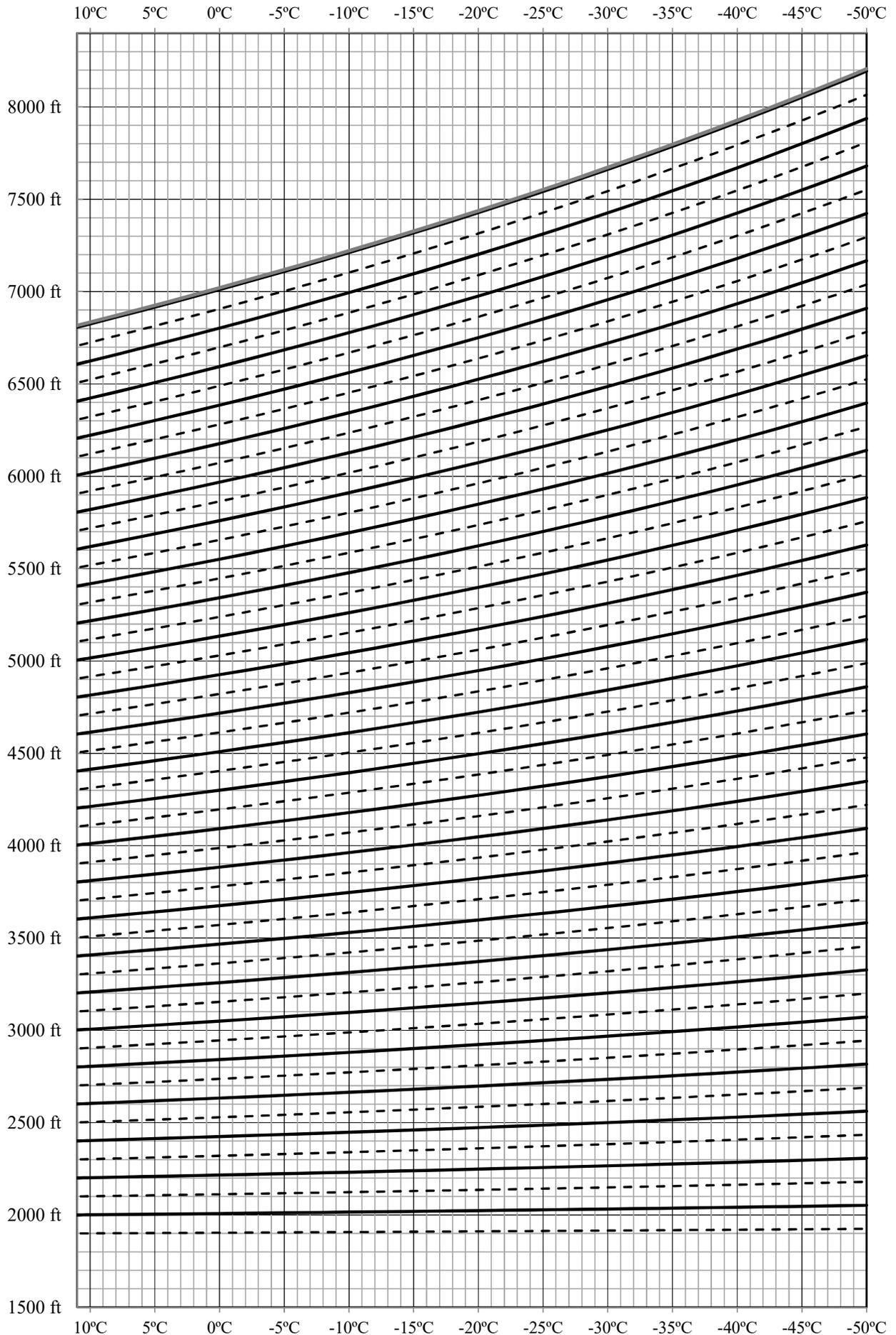


Airport: CYWK - Wabush, NL, CANADA. Station Elevation: 1809 feet.

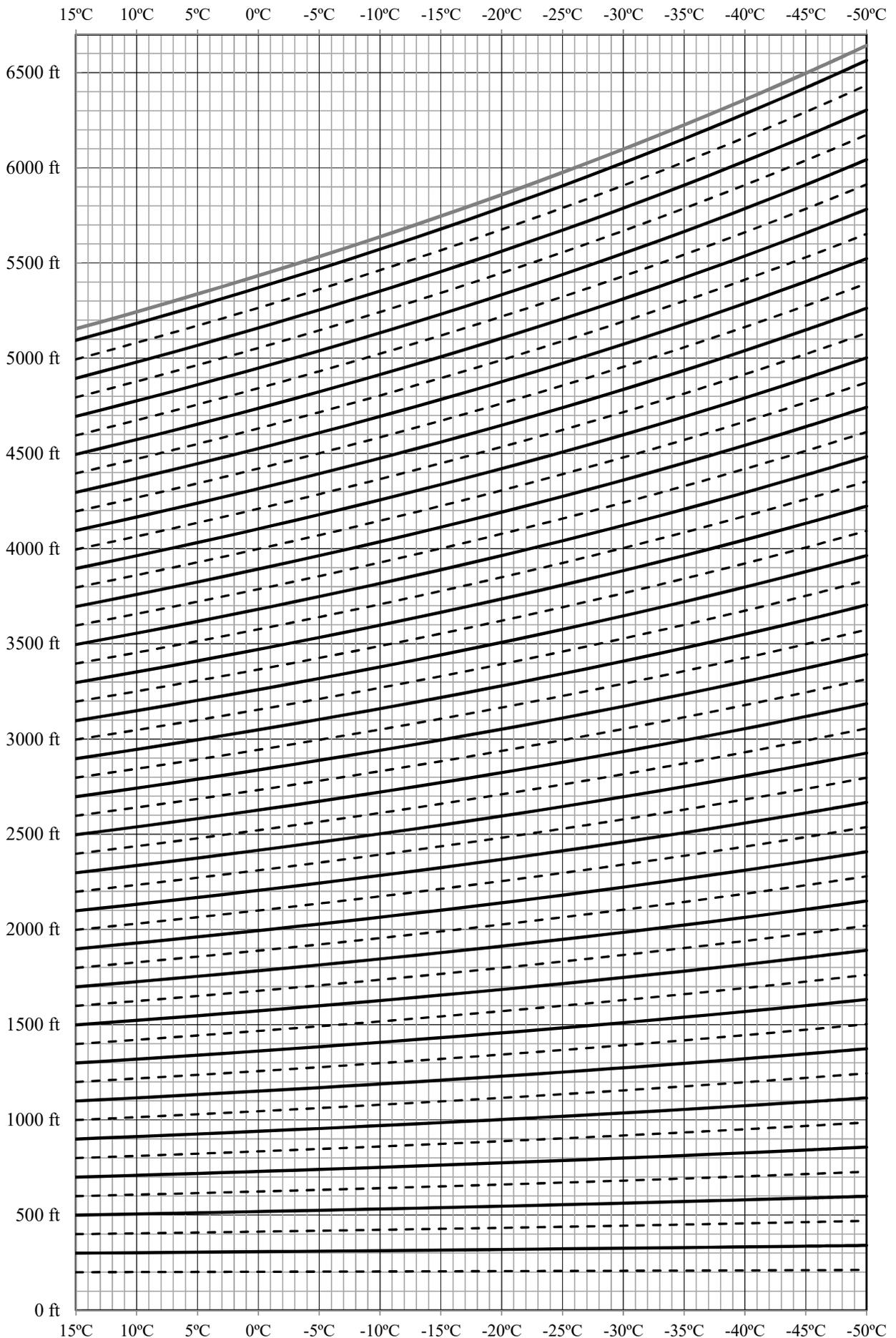
ISA Standard Temperature: 11.41°C

Altitude (MSL) Corrected for Cold Temperature

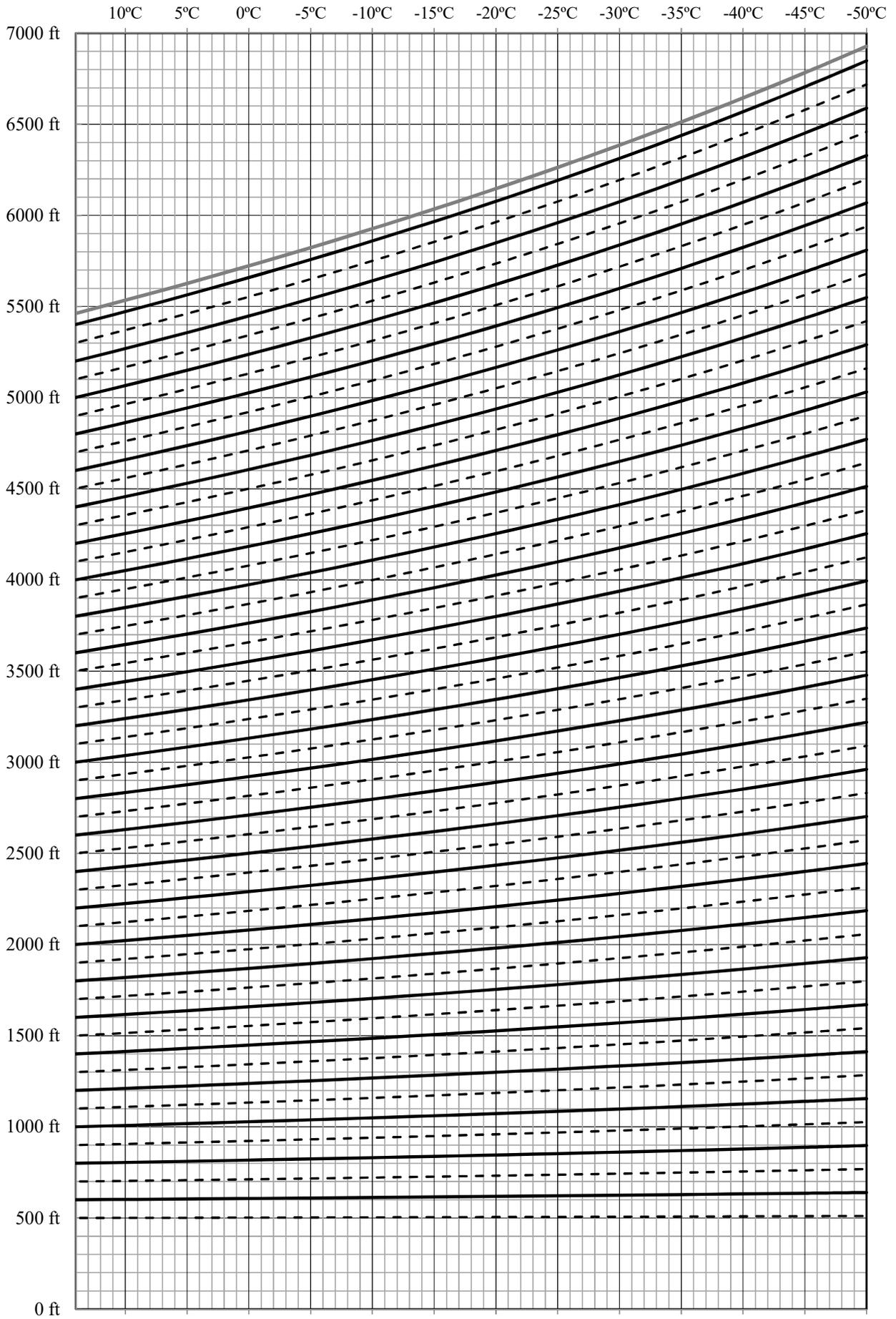
Altitude
MSL



Altitude
MSL



Altitude
MSL

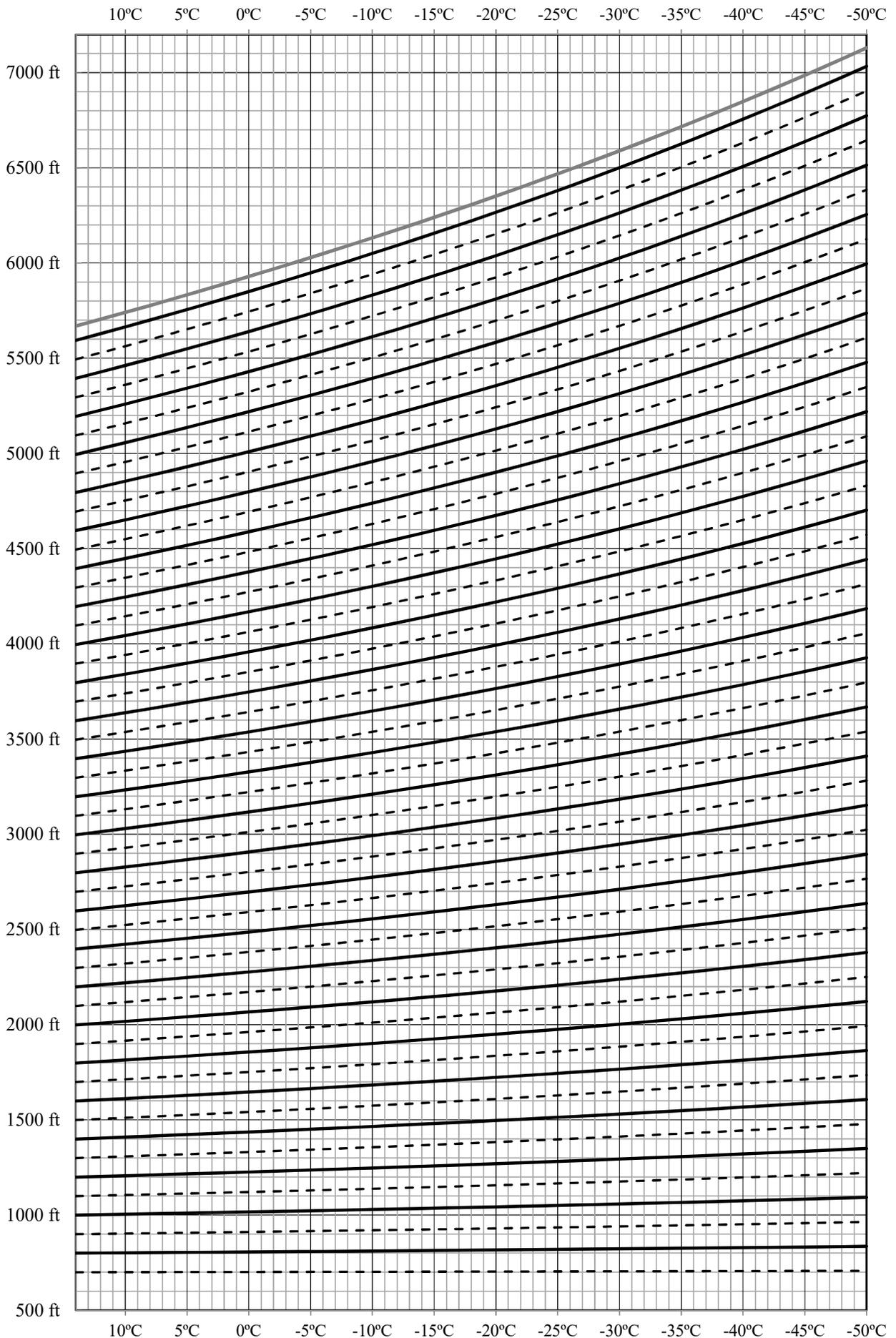




7 Northwest Territories Airports

7.1 CYZF - YELLOWKNIFE, NT, CANADA.....48

Altitude
MSL





8 Nova Scotia Airports

8.1 CYHZ - HALIFAX, NS, CANADA.....50

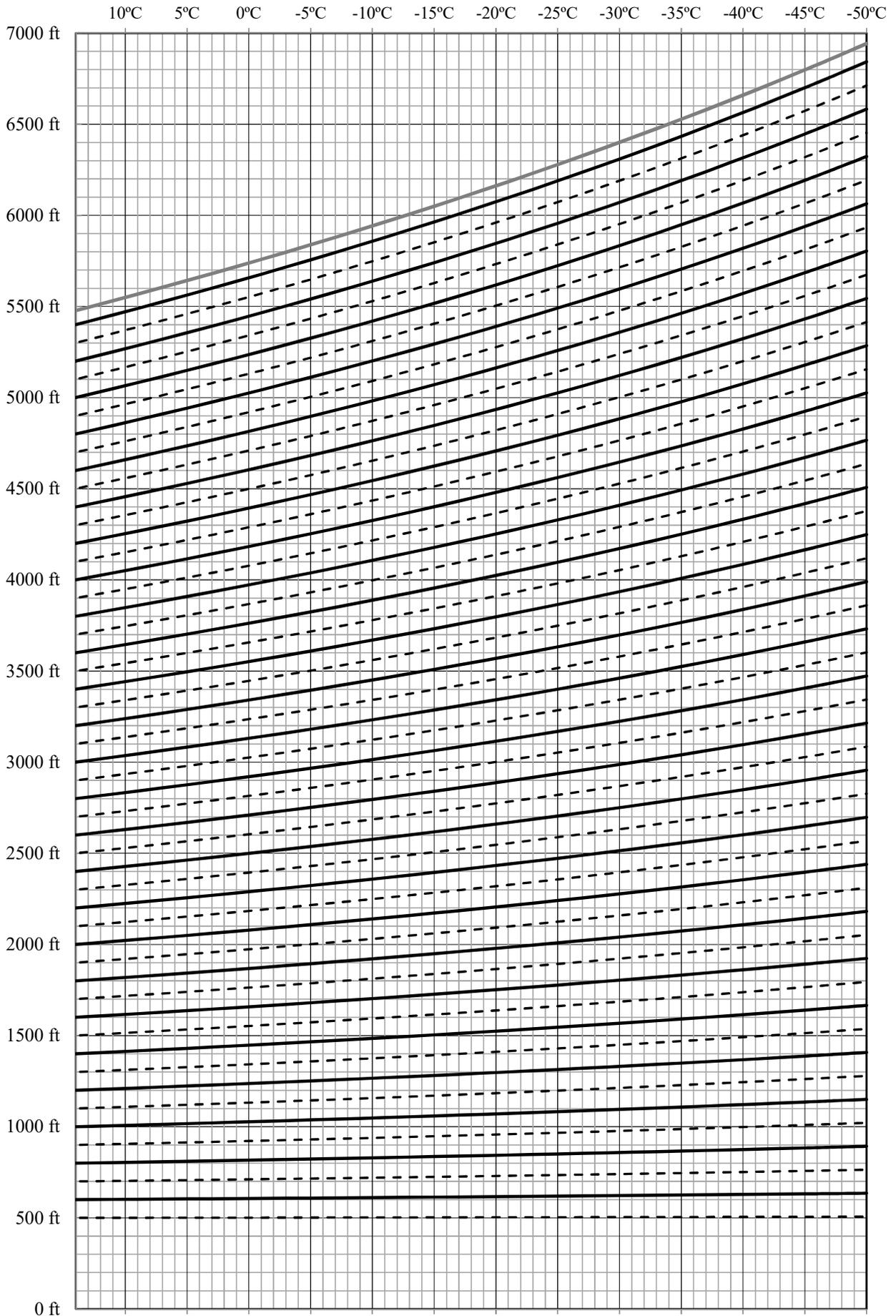
8.2 CYQY - SYDNEY, NS, CANADA51

Airport: CYHZ - Halifax, NS, CANADA. Station Elevation: 477 feet.

ISA Standard Temperature: 14.05°C

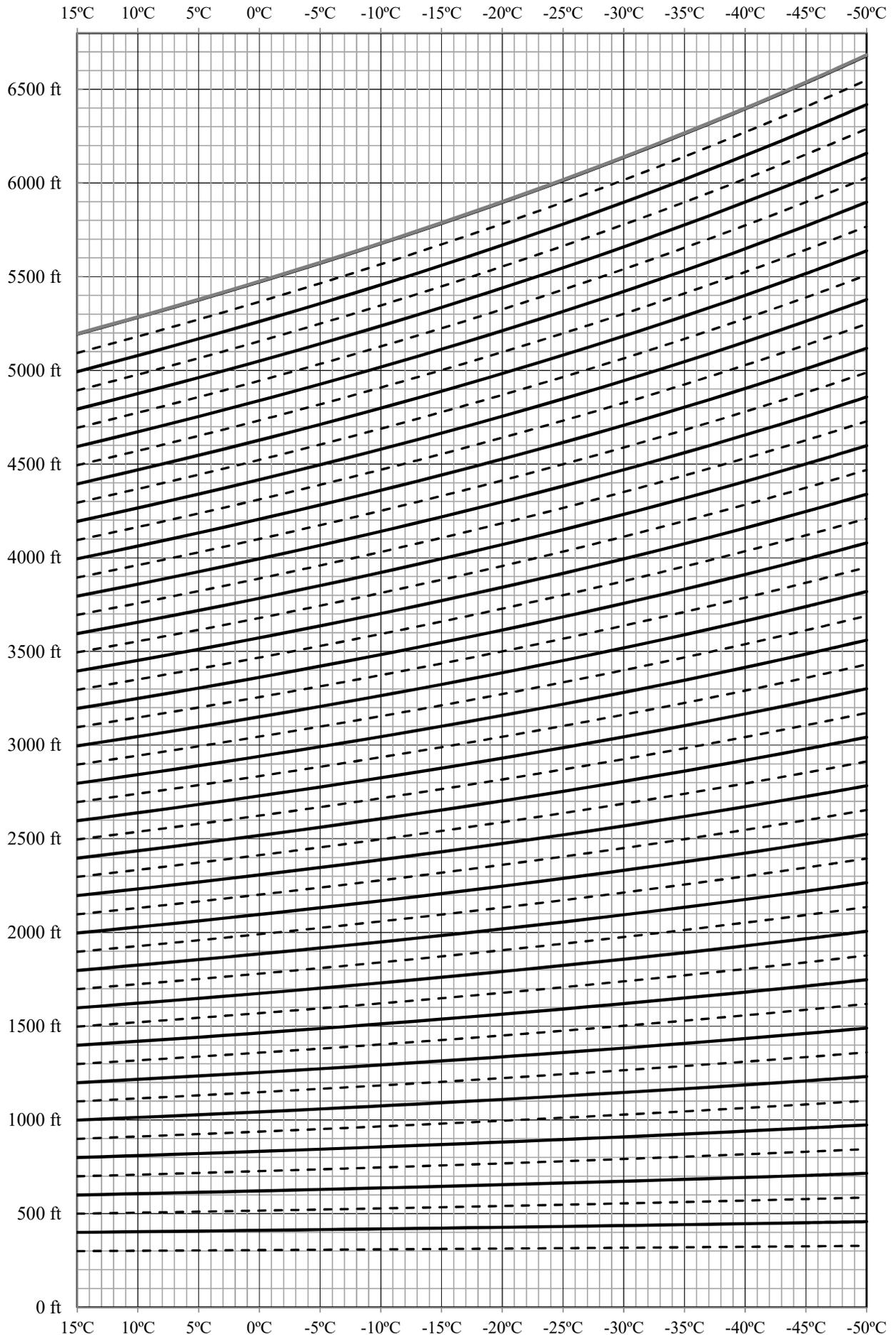
Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL



Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature





9 Nunavut Airports

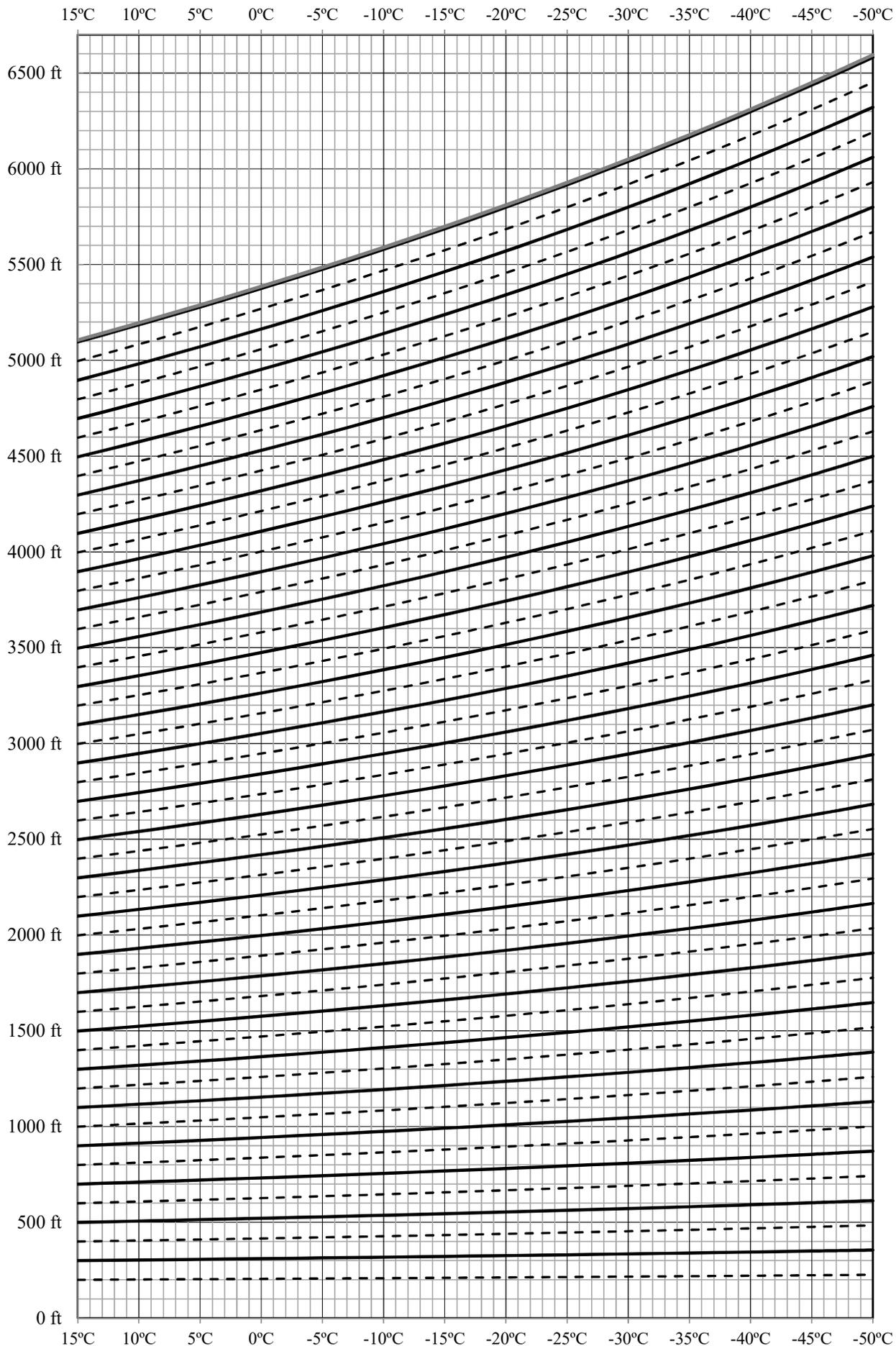
9.1 CYFB - IQALUIT, NU, CANADA53

Airport: CYFB - Iqaluit, NU, CANADA. Station Elevation: 110 feet.

ISA Standard Temperature: 14.78°C

Altitude (MSL) Corrected for Cold Temperature

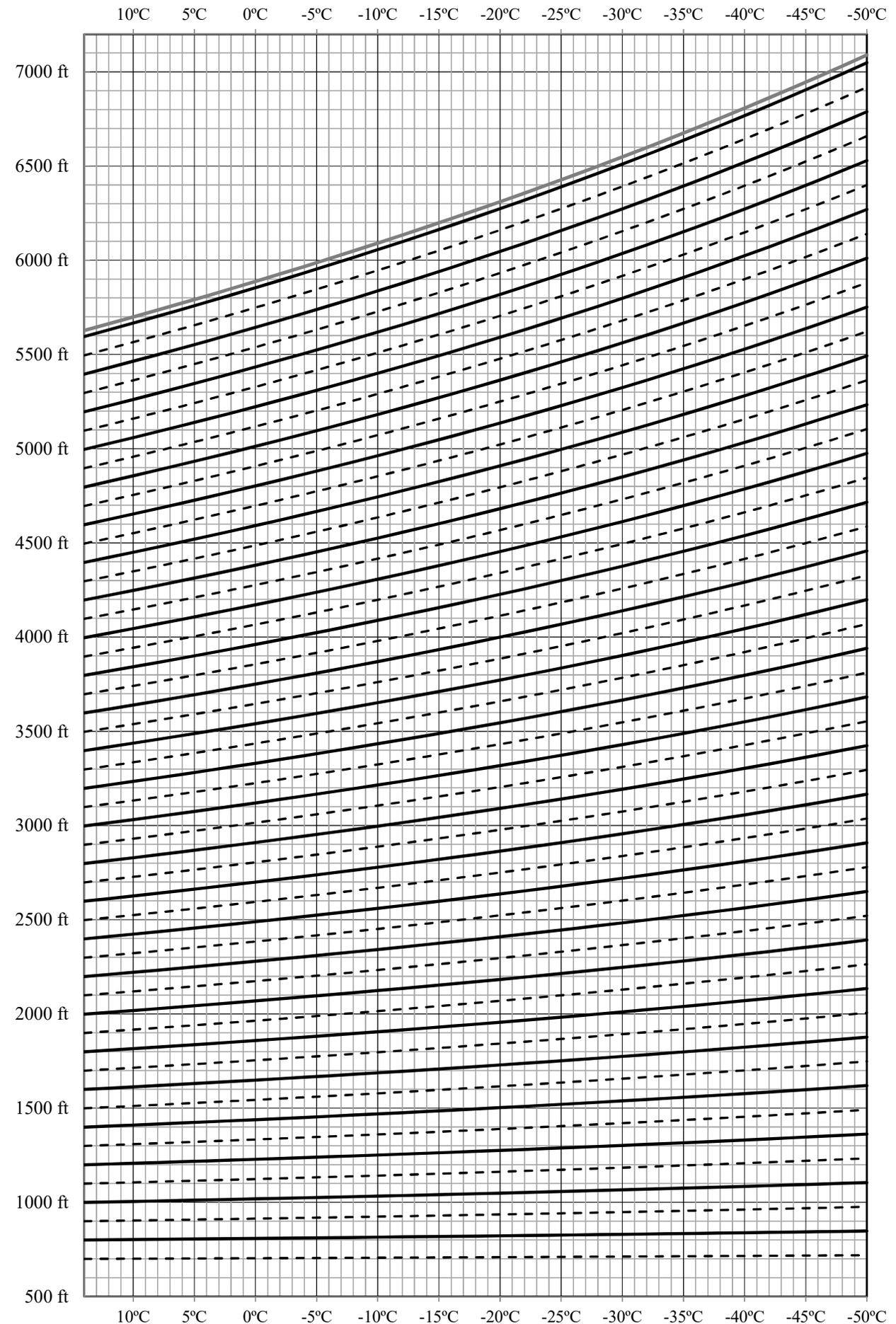
Altitude
MSL



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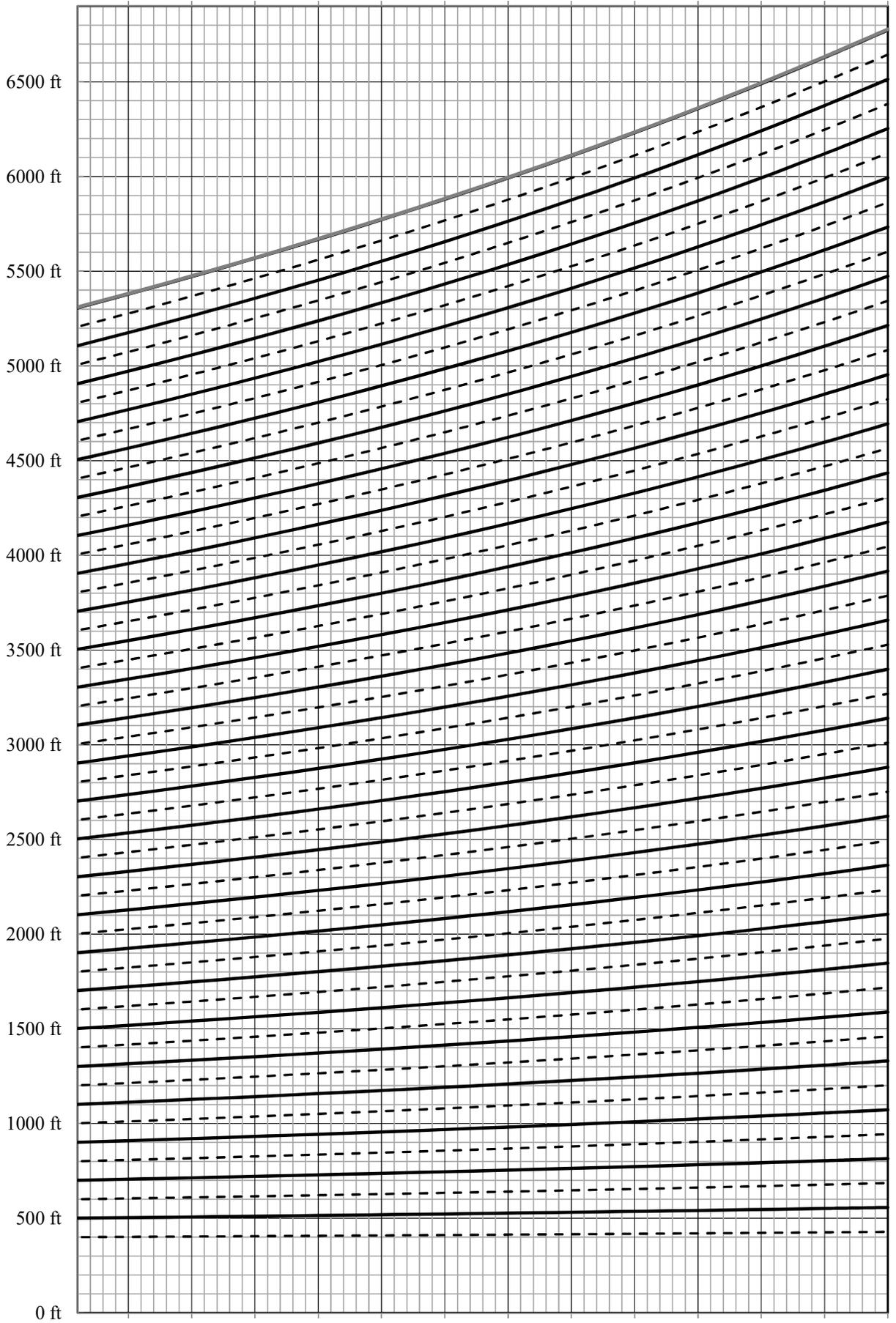
Altitude
MSL



Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature

10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C

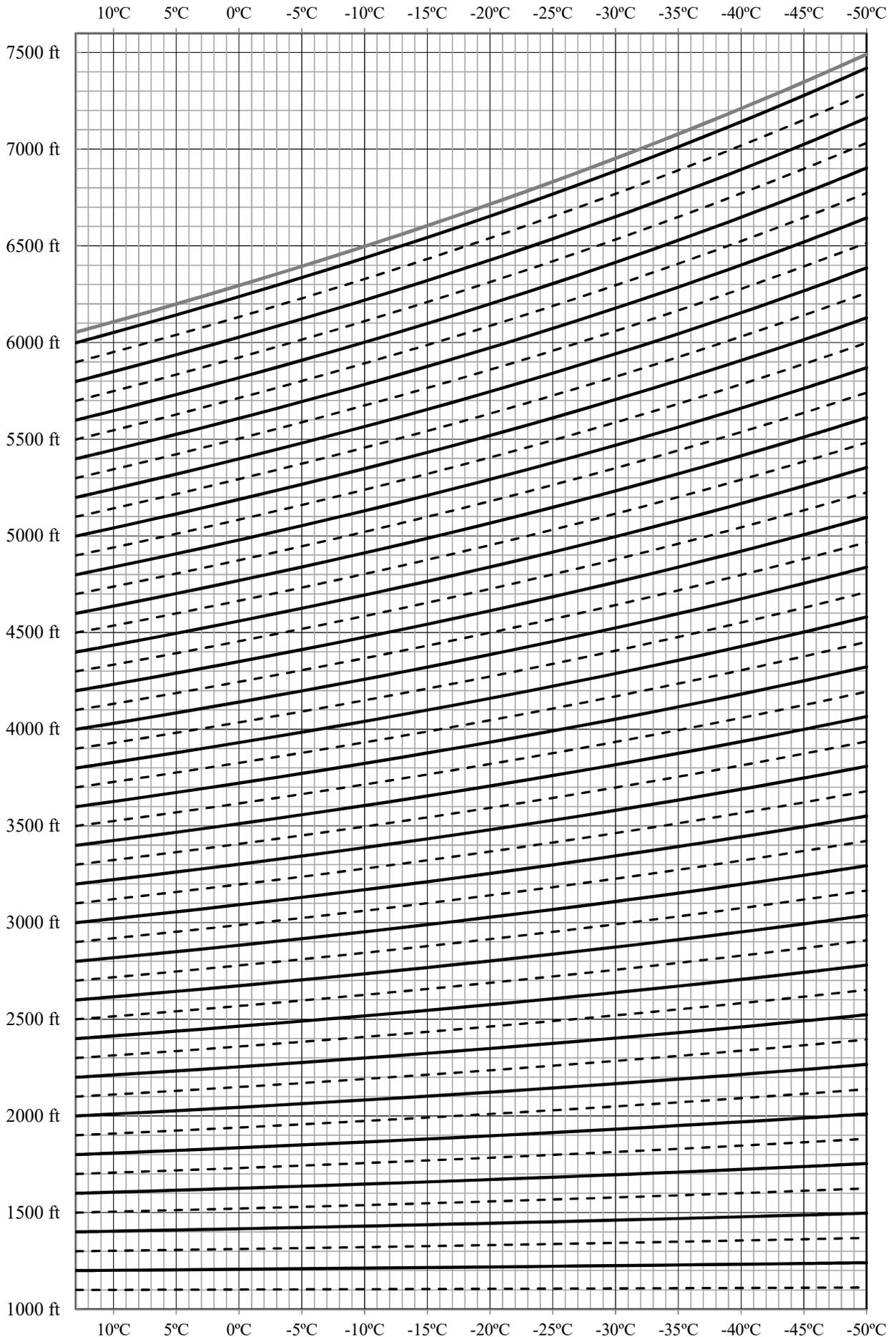


Airport: CYKF - Kitchener, ON, CANADA. Station Elevation: 1055 feet.

ISA Standard Temperature: 12.91°C

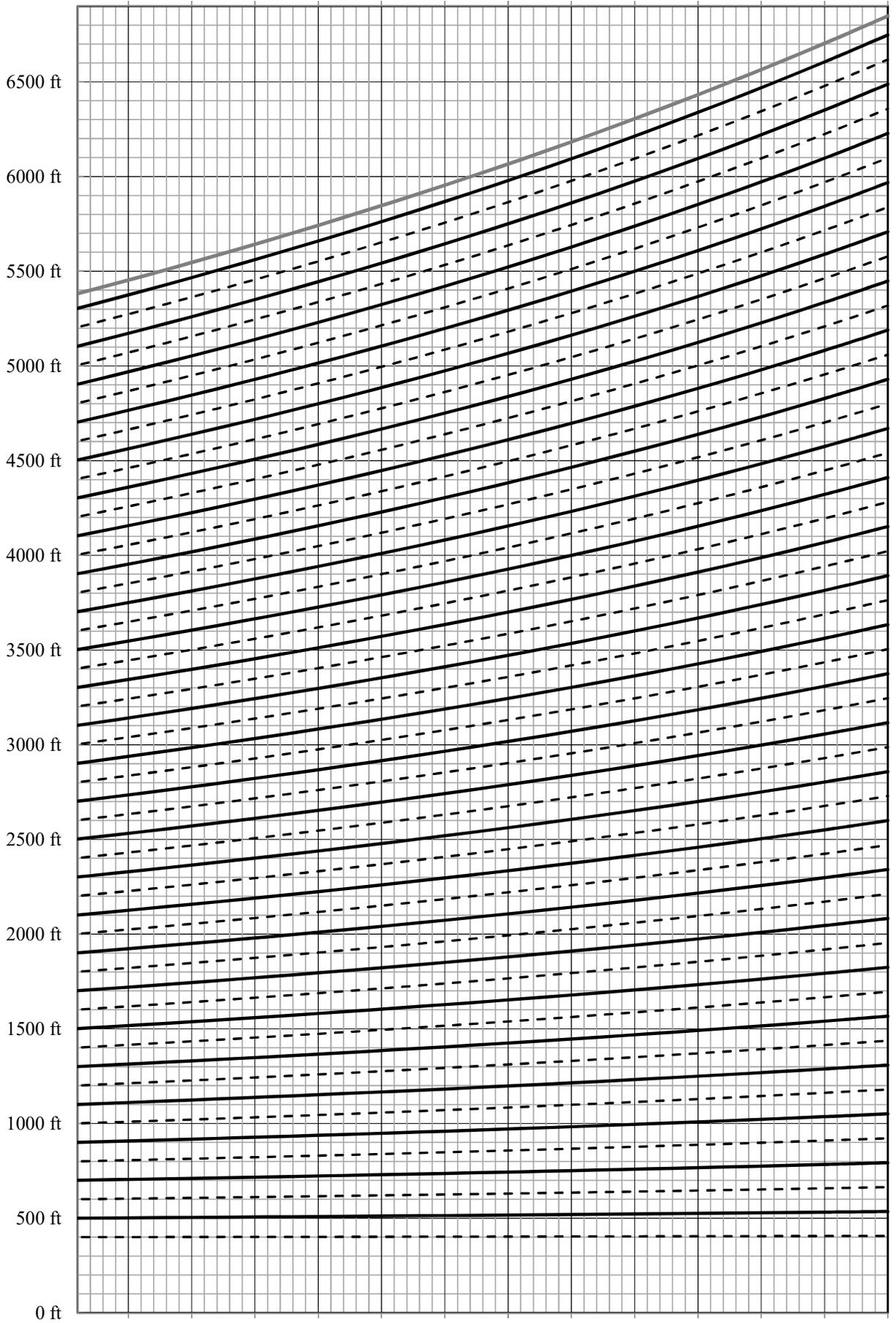
Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL

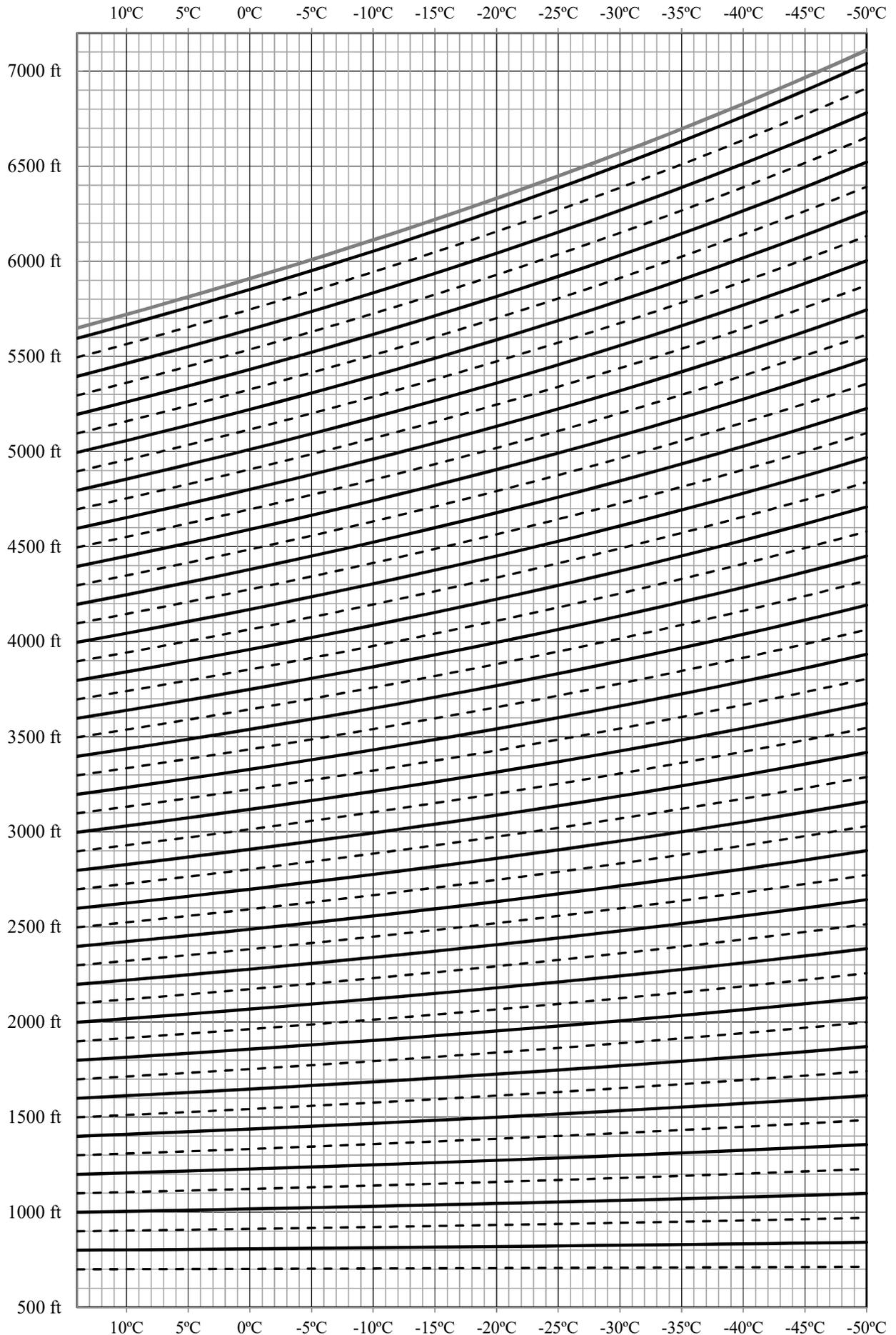


Altitude
MSL

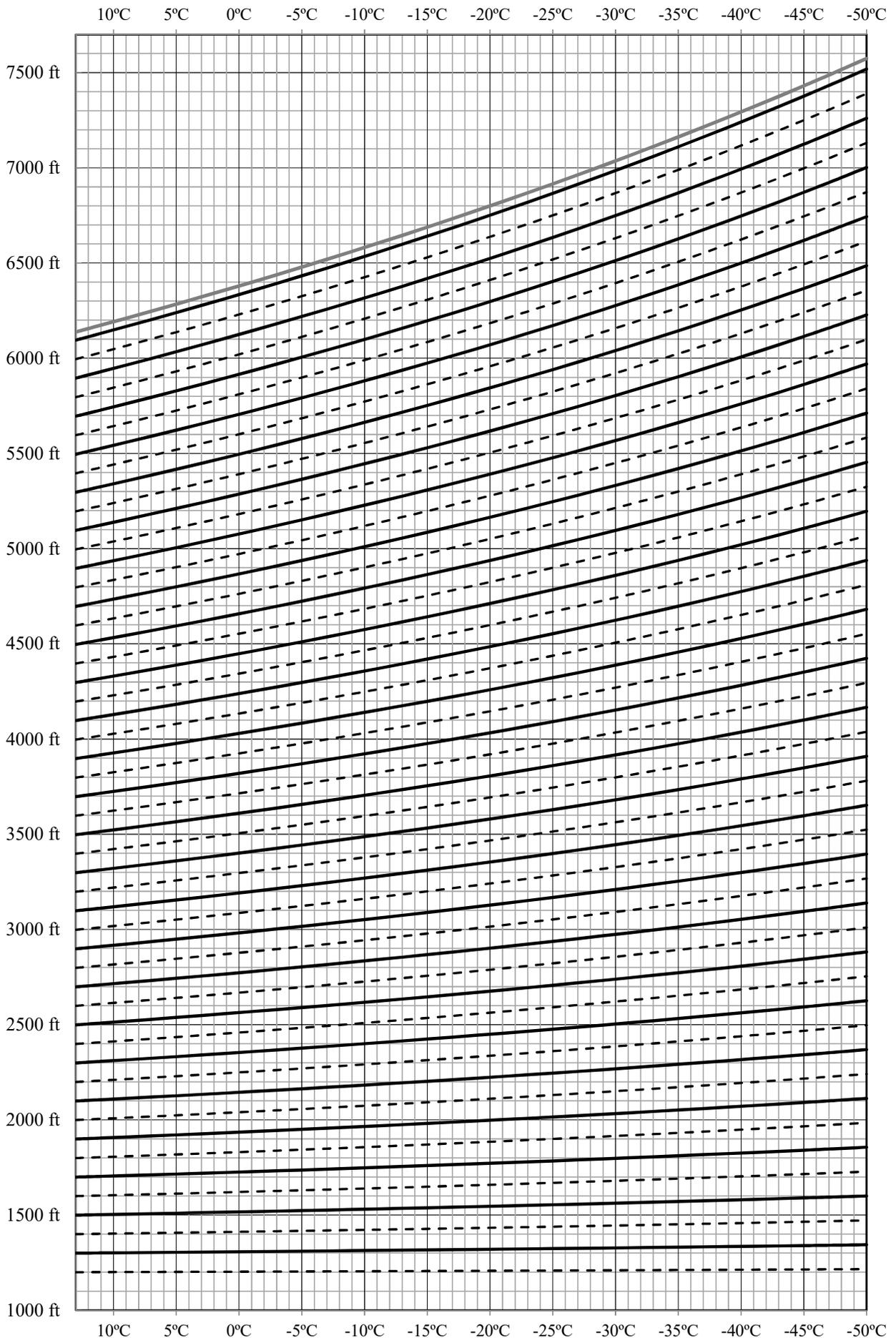
10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C



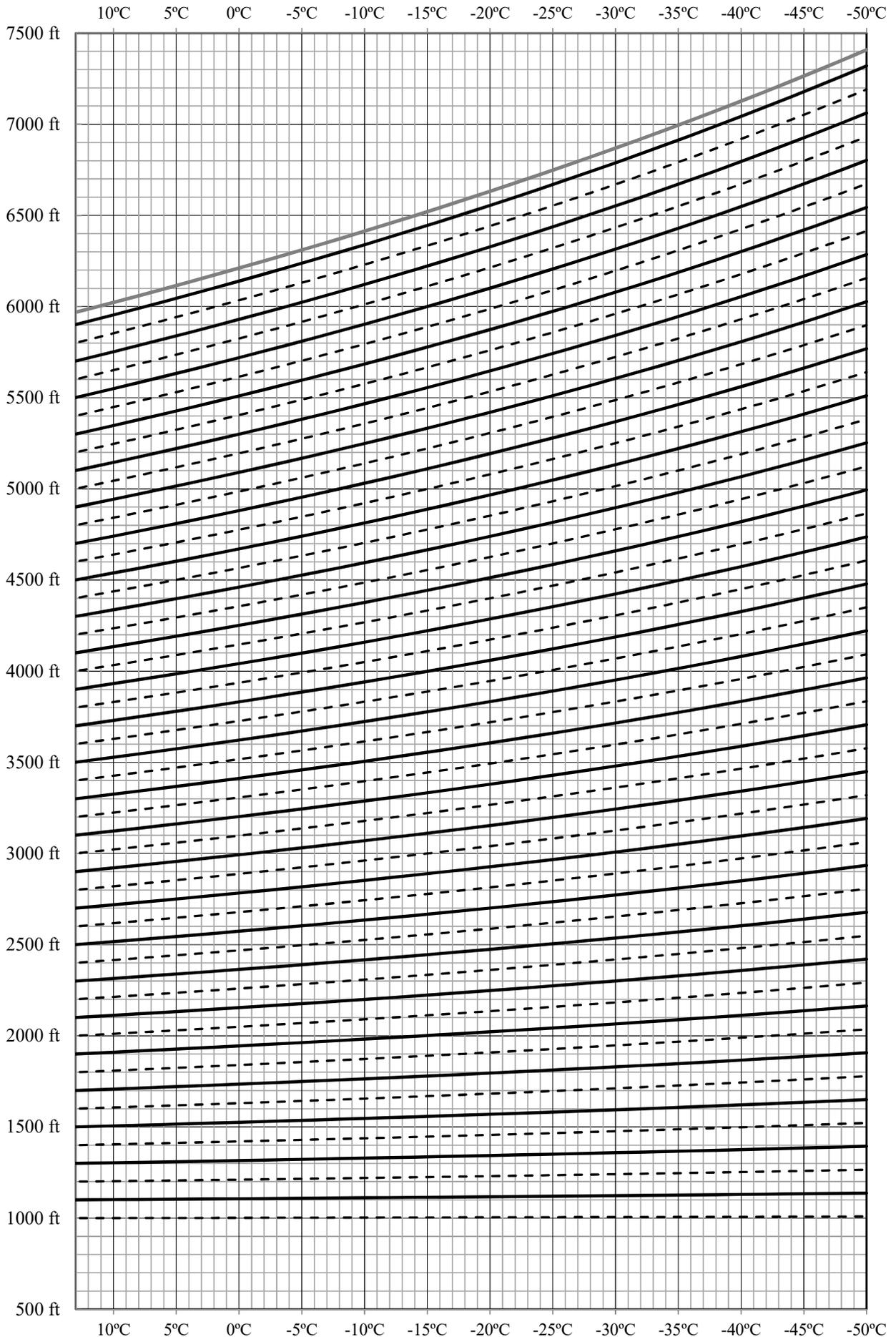
Altitude
MSL



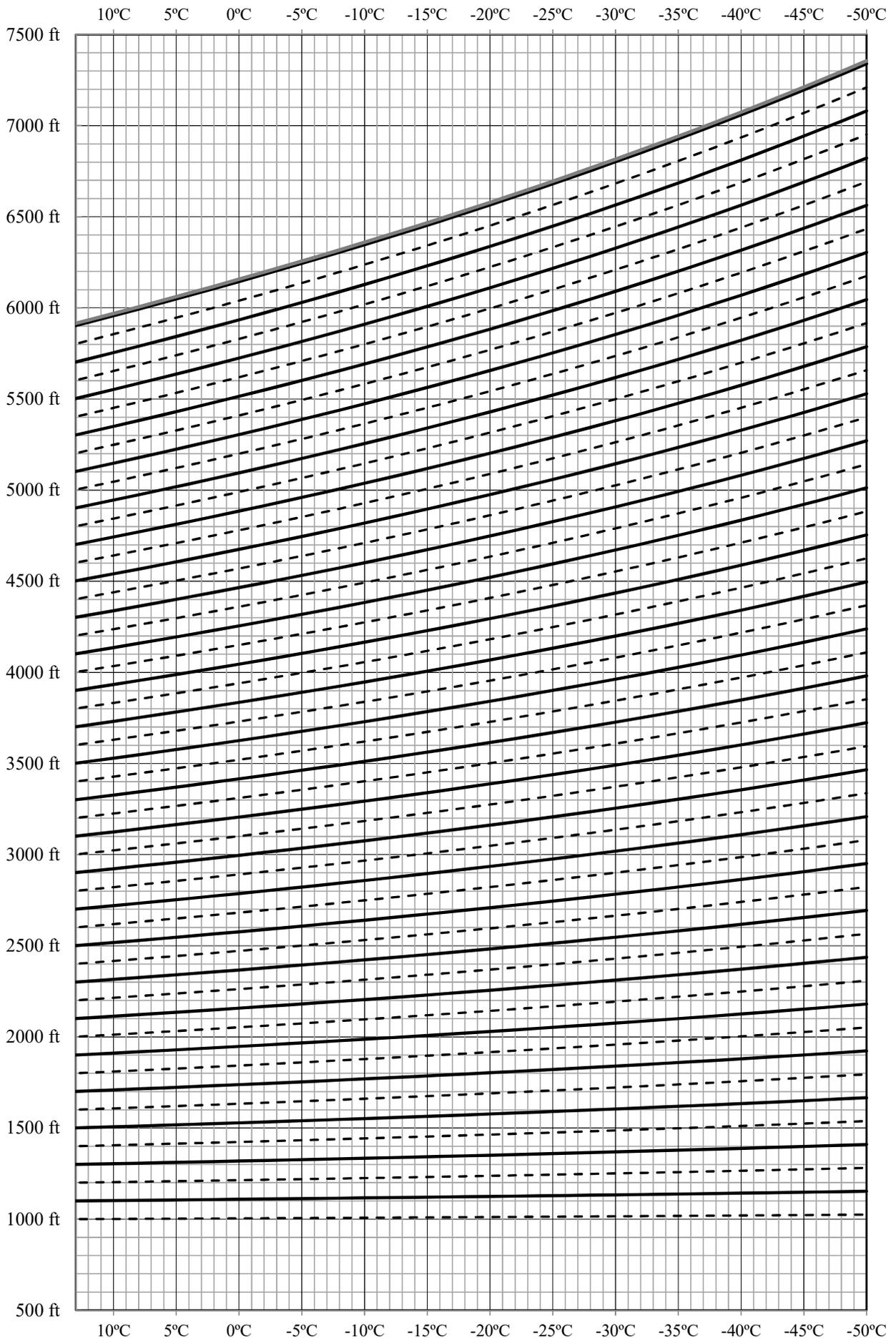
Altitude
MSL



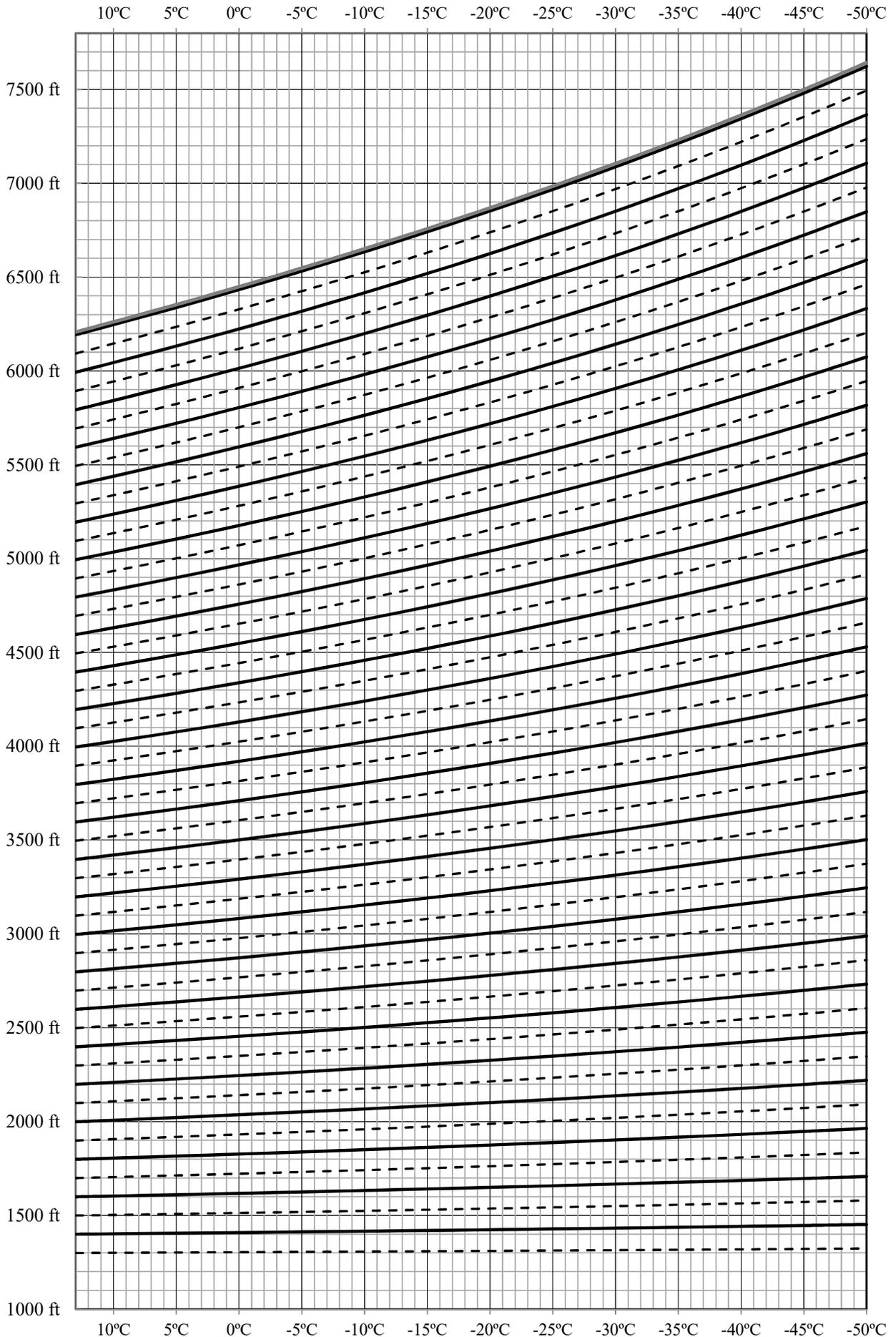
Altitude
MSL



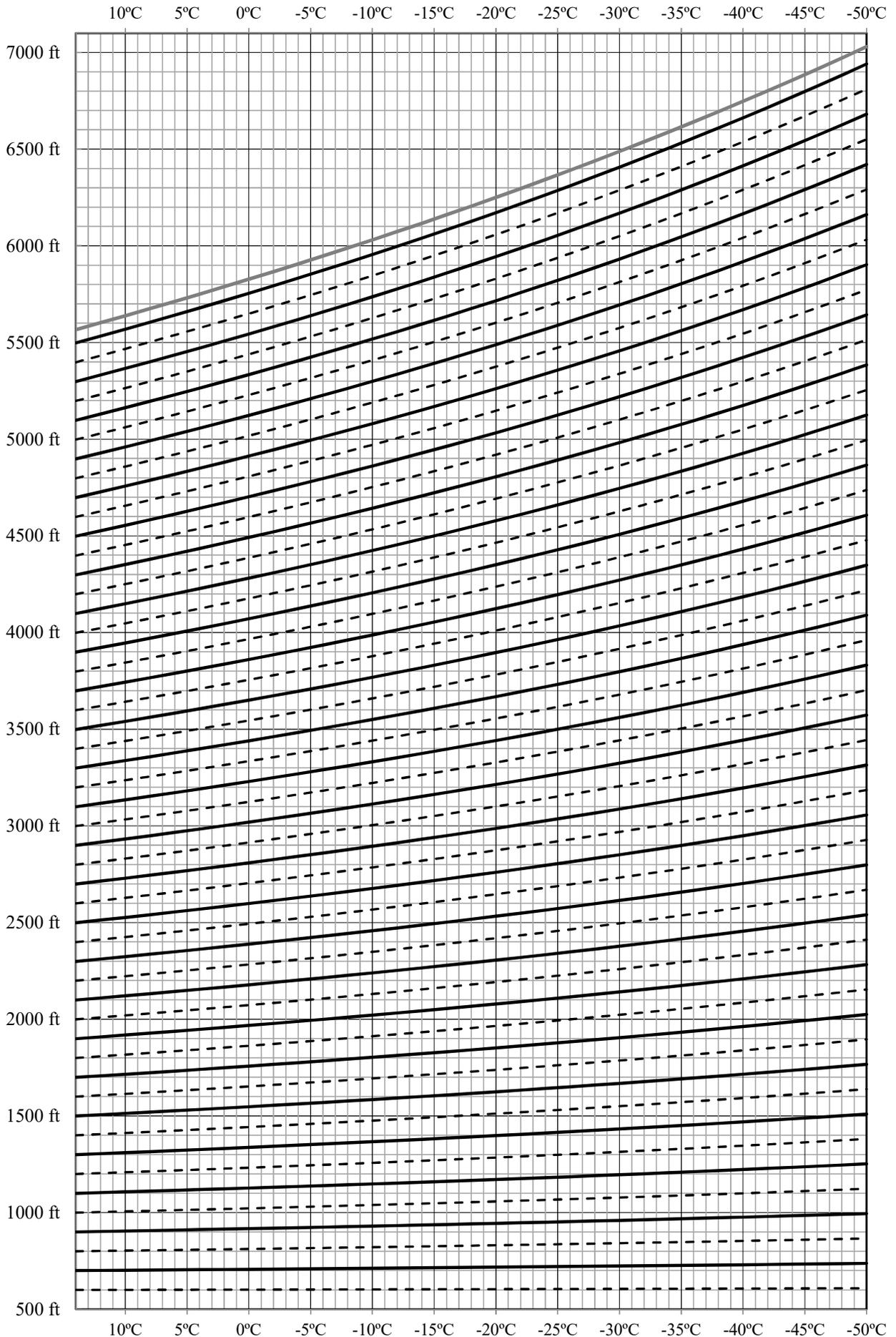
Altitude
MSL



Altitude
MSL



Altitude
MSL

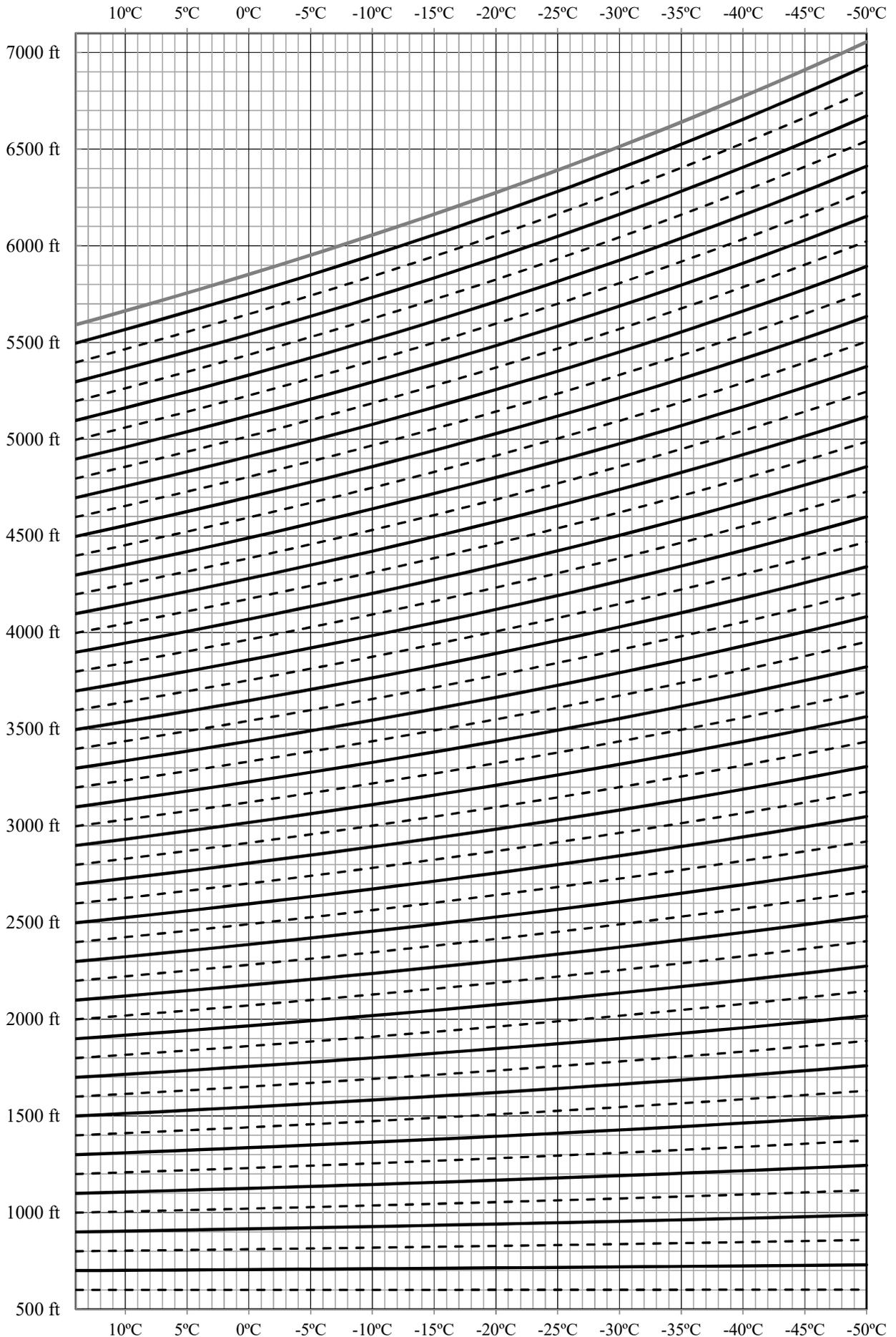


Airport: CYZR - Sarnia, ON, CANADA. Station Elevation: 595 feet.

ISA Standard Temperature: 13.82°C

Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL



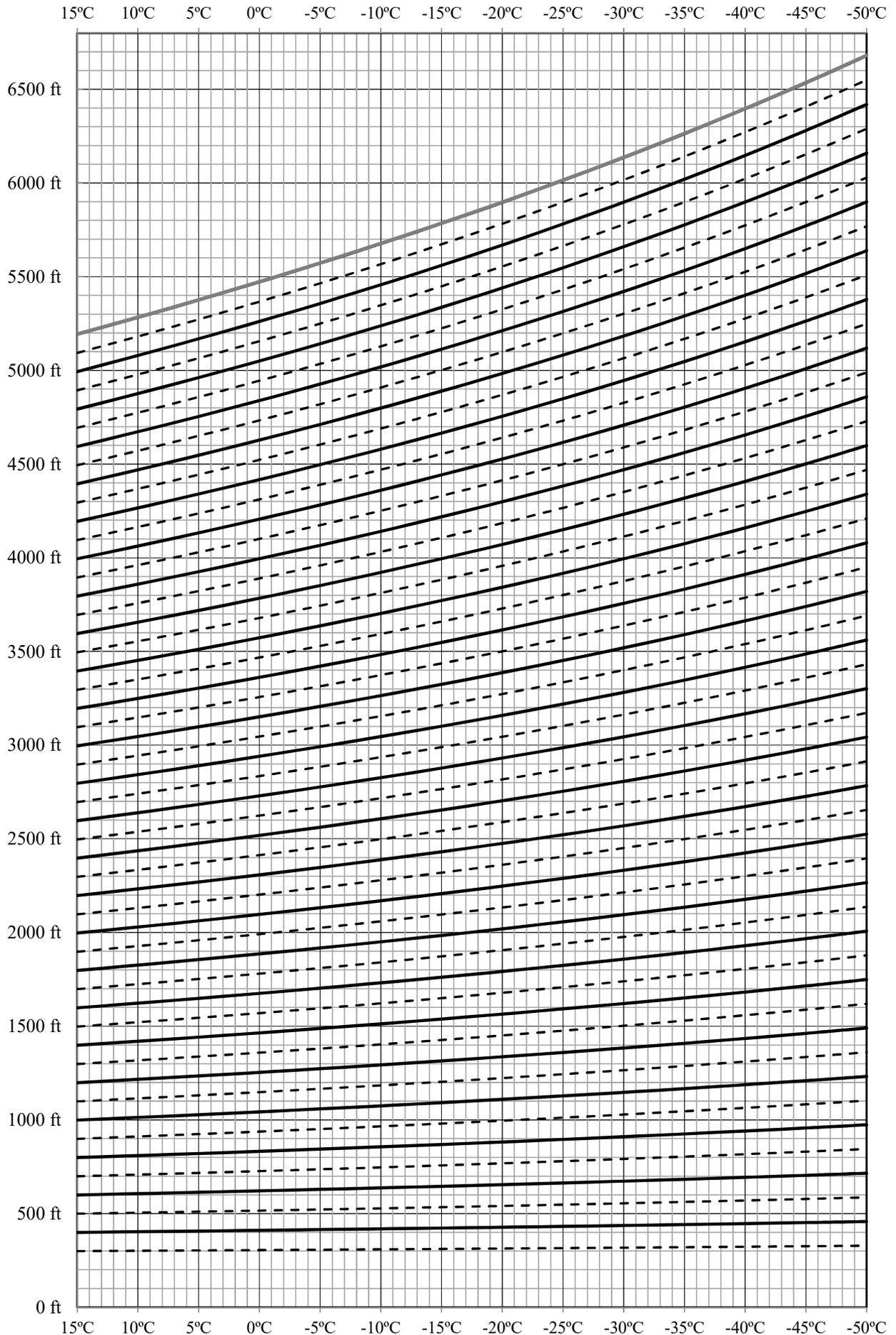


11 Prince Edward Island Airports

11.1 CYYG - CHARLOTTETOWN, PE, CANADA67

Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature



12 Quebec Airports

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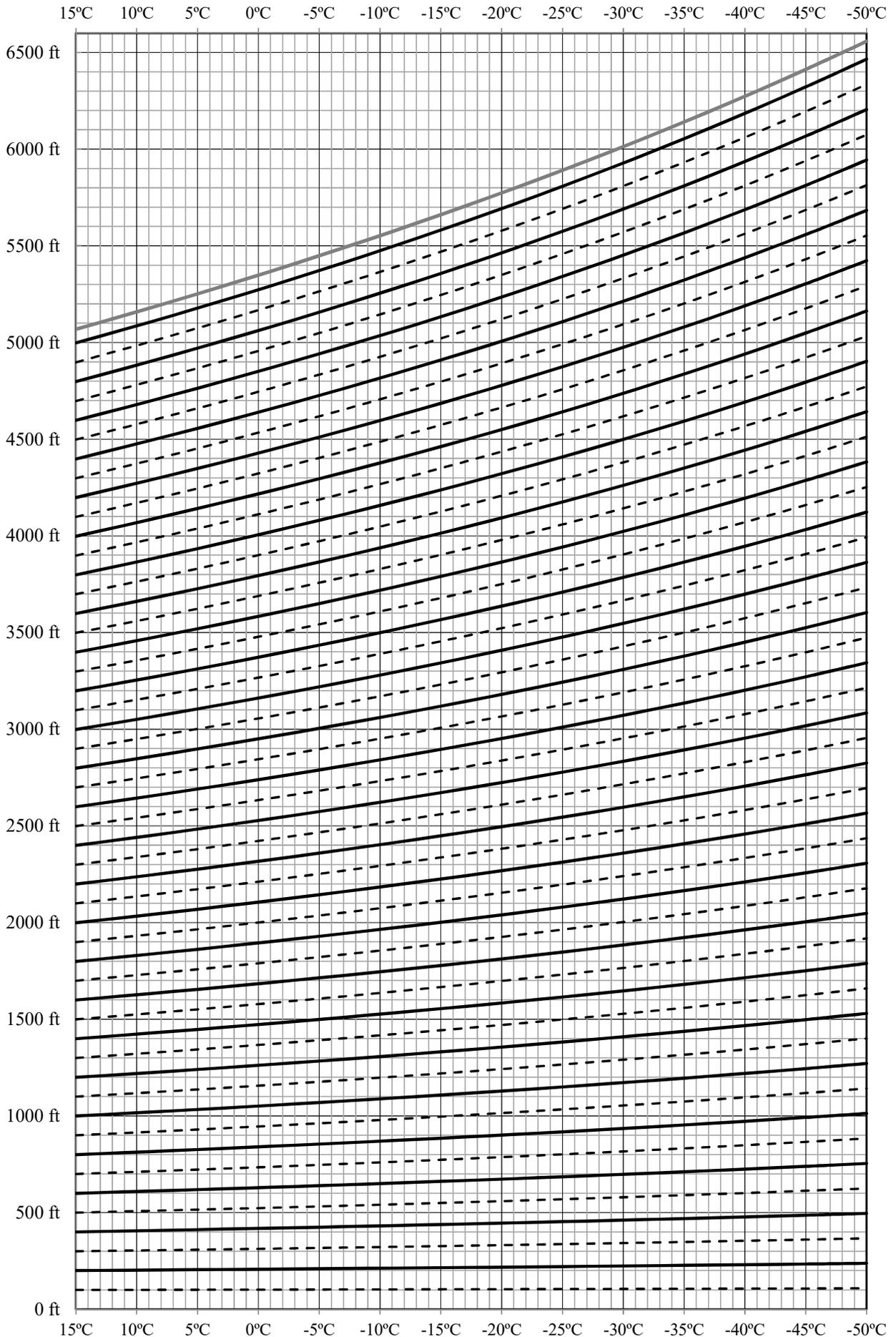
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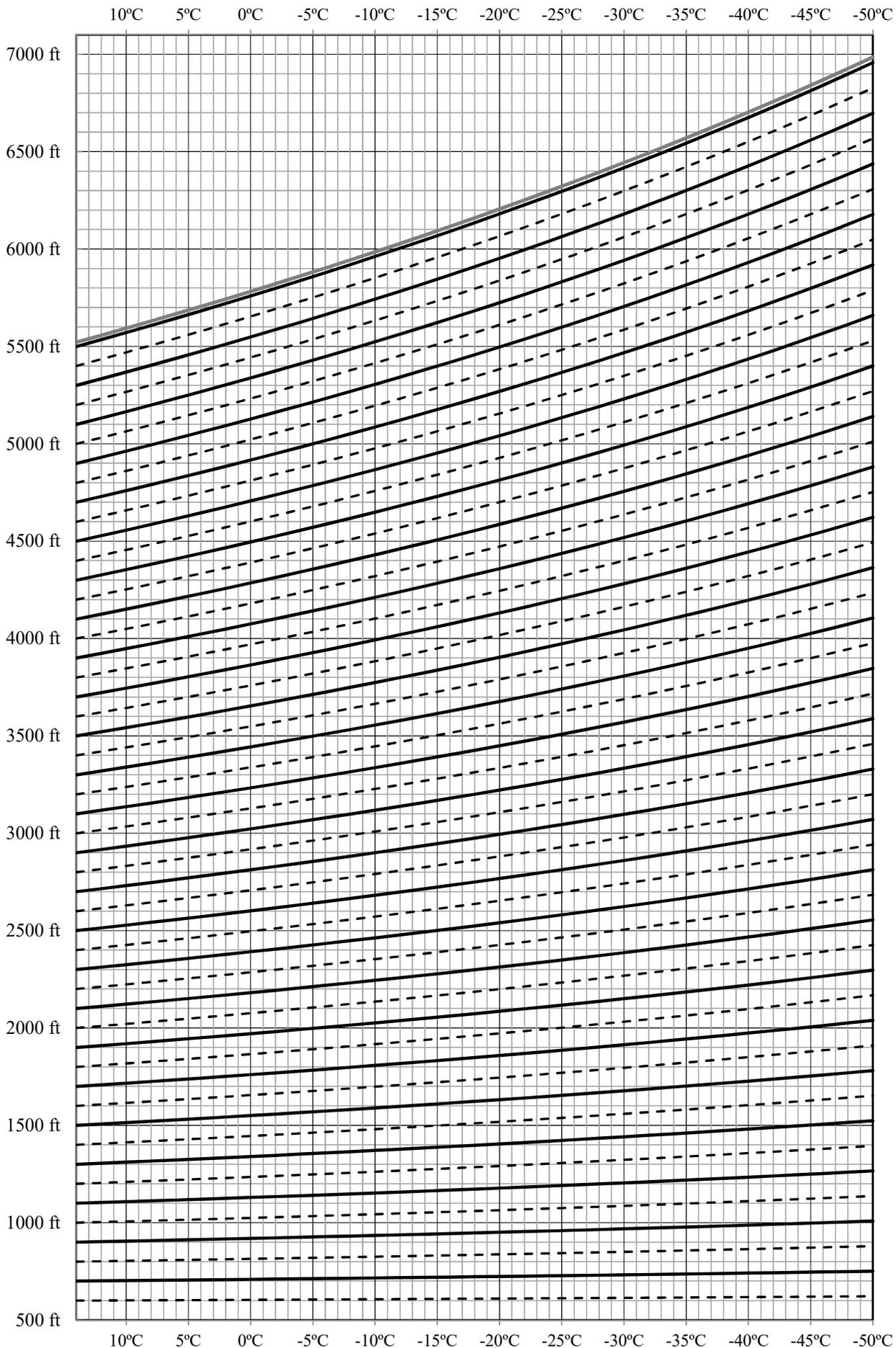
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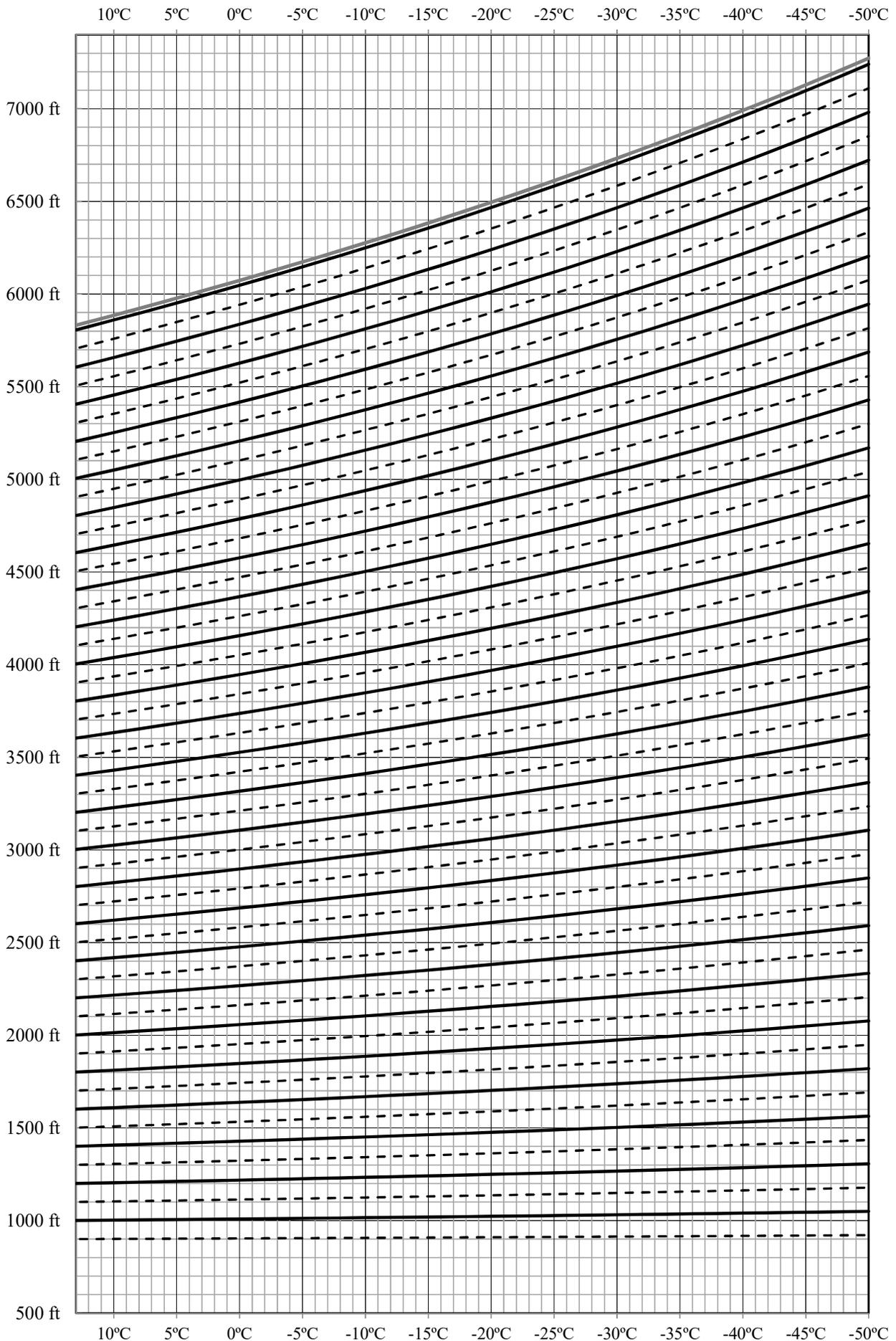
Altitude
MSL



Altitude
MSL



Altitude
MSL



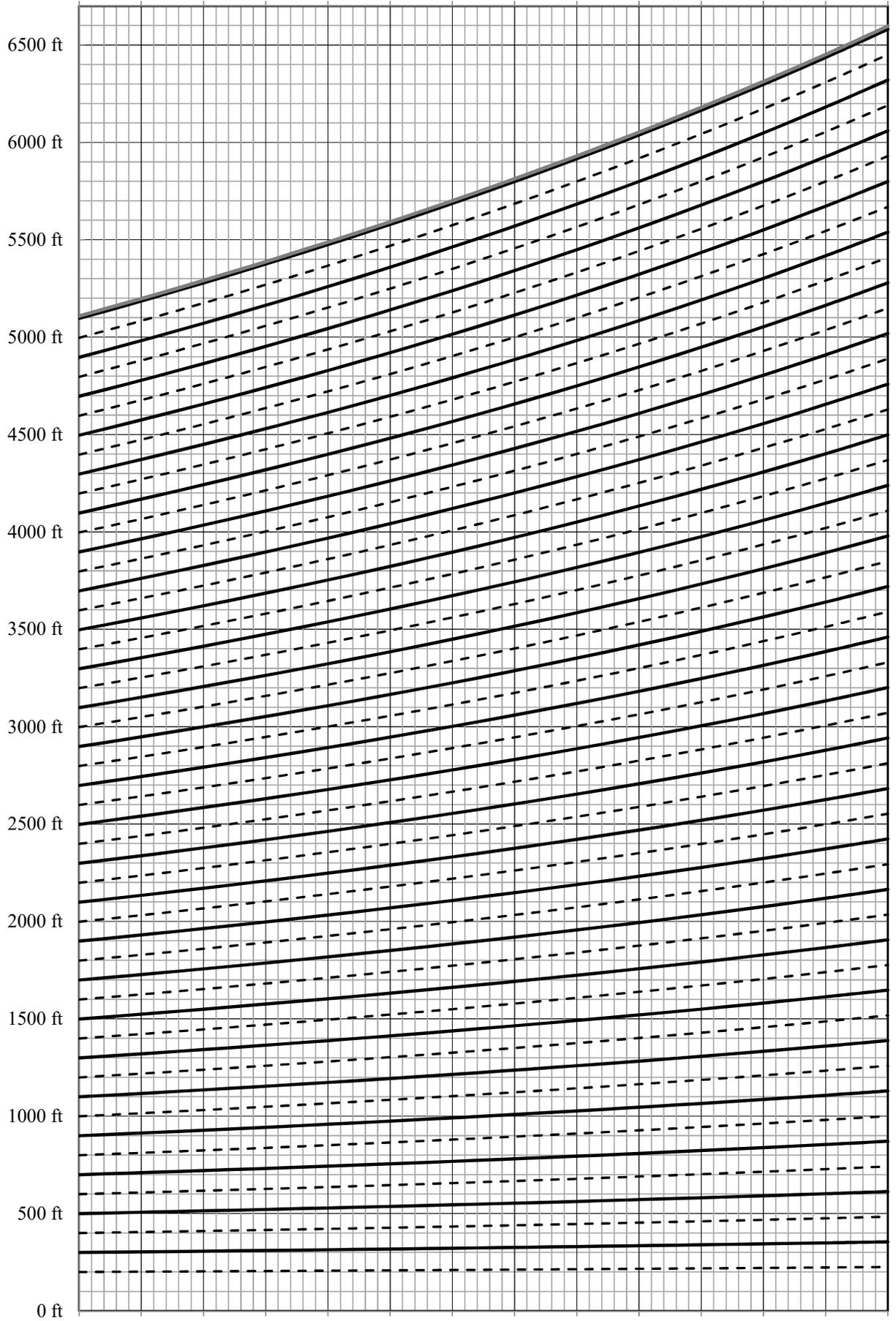
Airport: CYGP - Gaspe, QC, CANADA. Station Elevation: 112 feet.

ISA Standard Temperature: 14.78°C

Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL

15°C 10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C

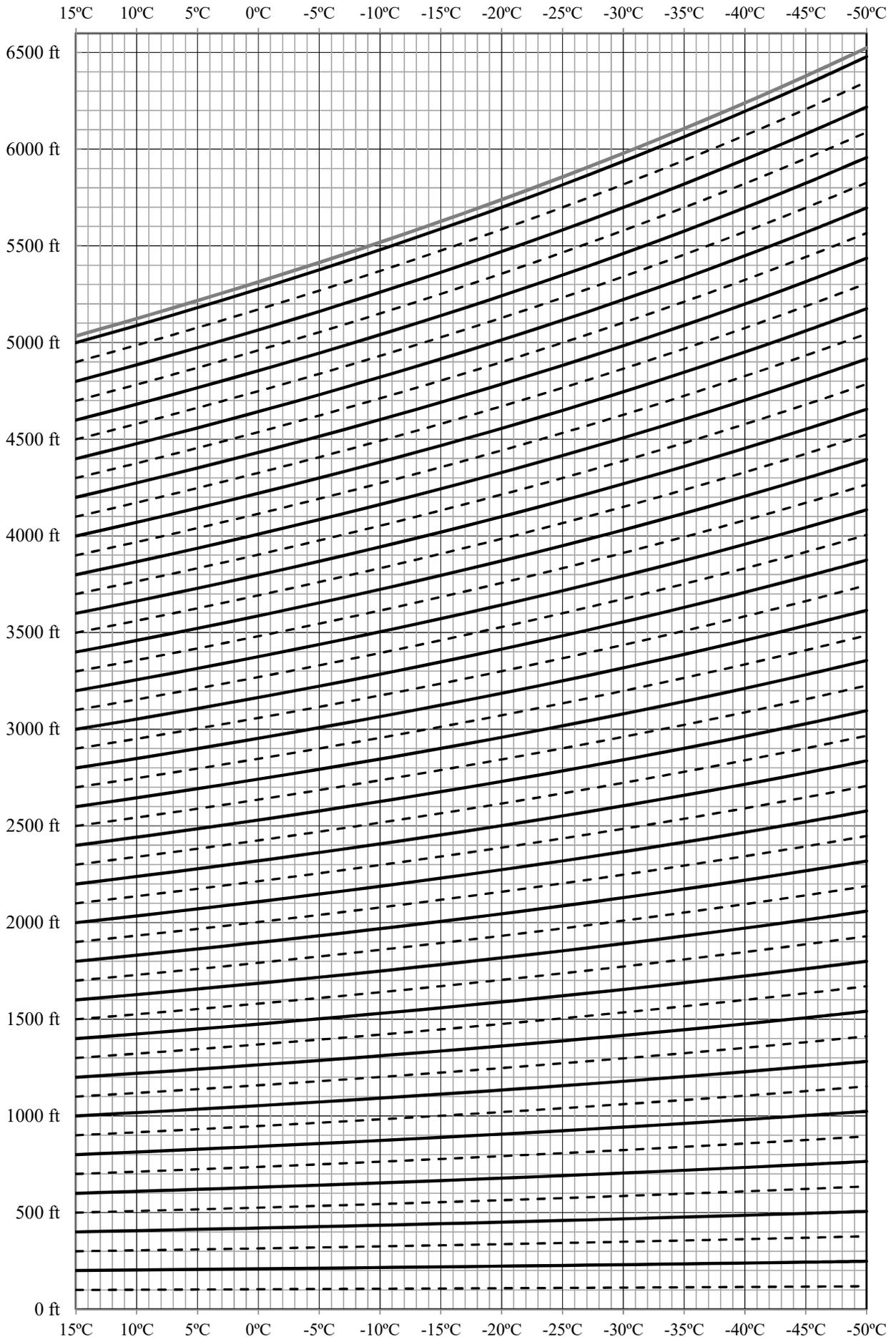


15°C 10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C



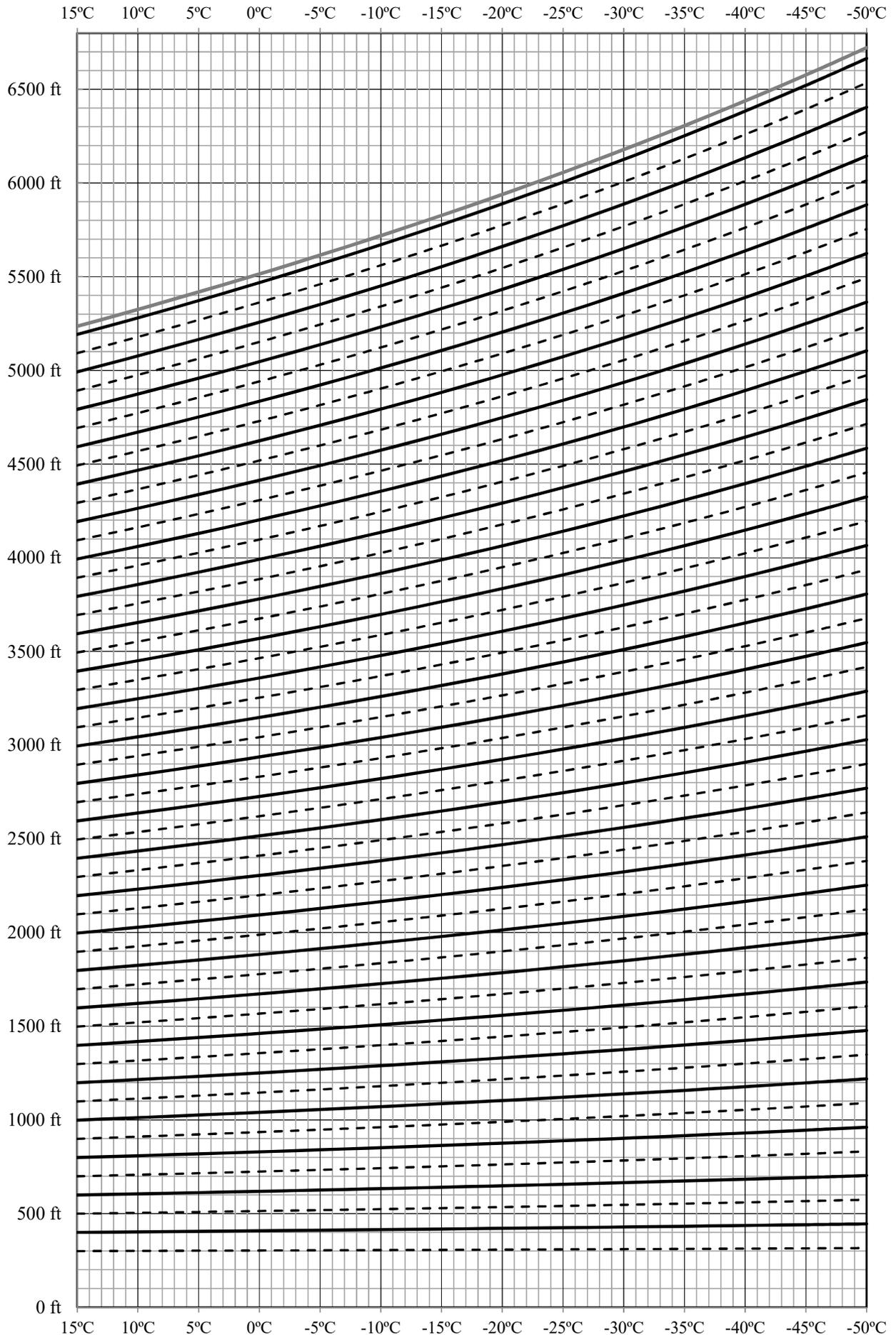
Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature

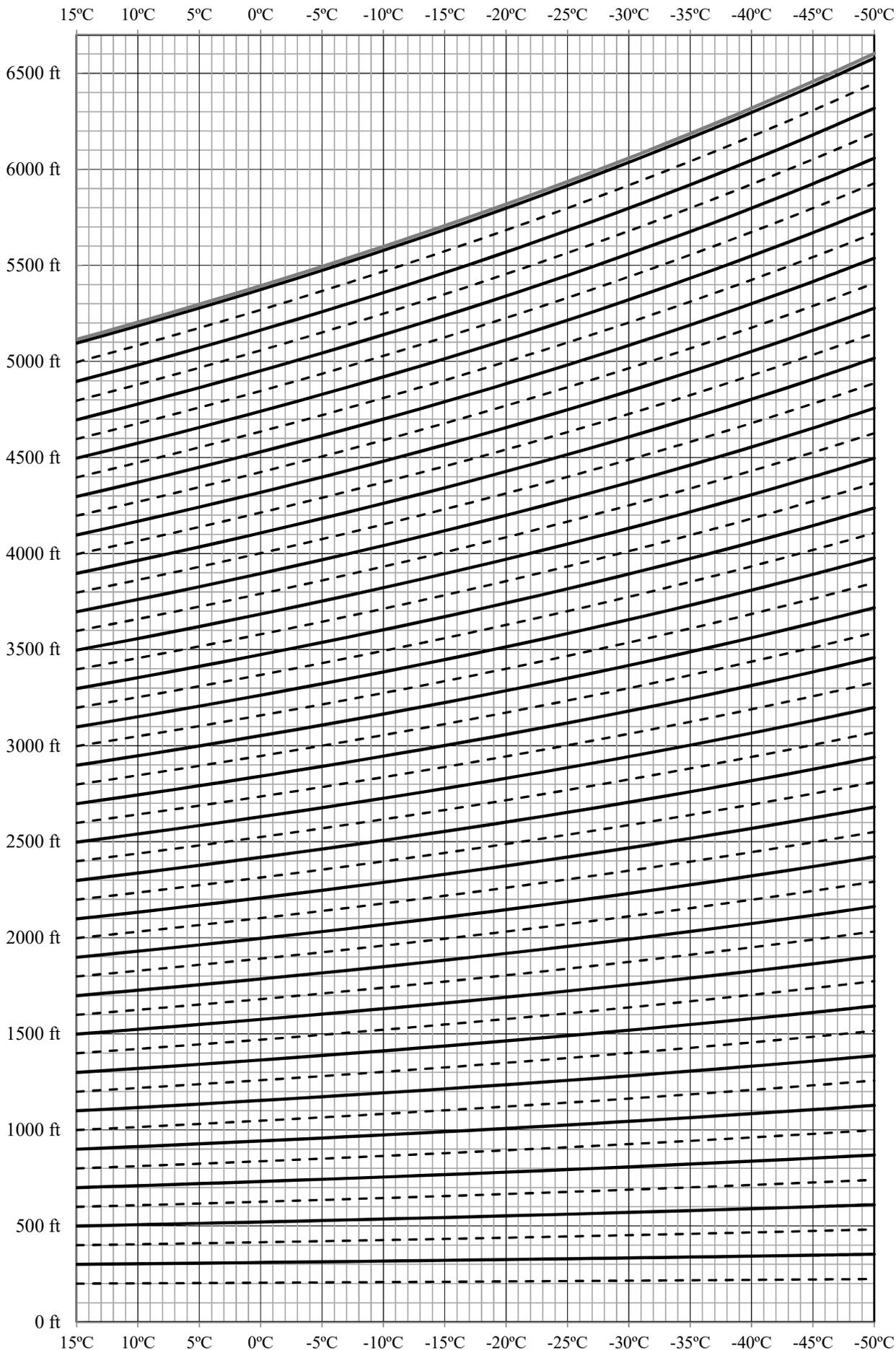


Altitude
MSL

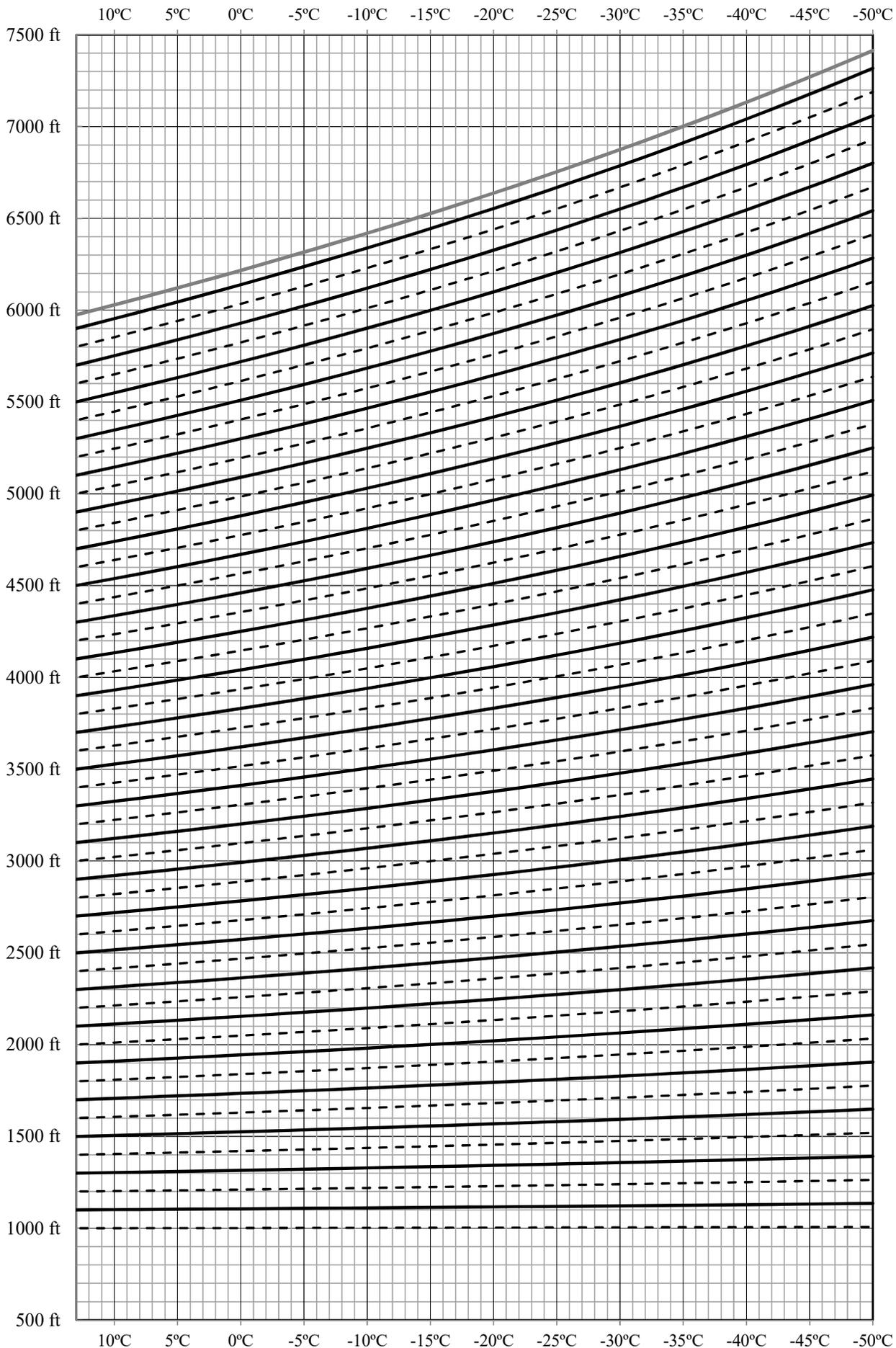
Altitude (MSL) Corrected for Cold Temperature



Altitude
MSL



Altitude
MSL

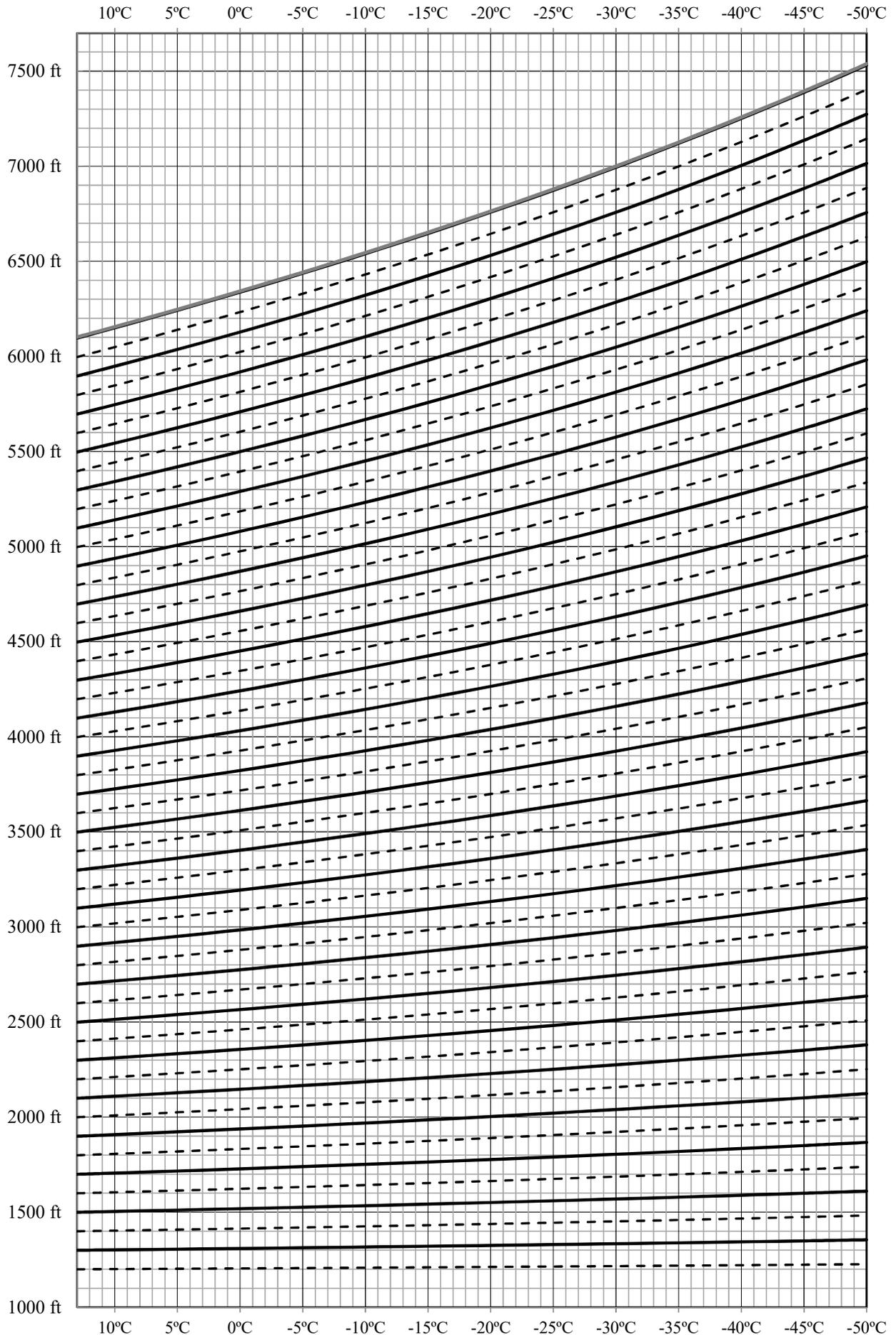


Airport: CYVO - Val d'Or, QC, CANADA. Station Elevation: 1105 feet.

ISA Standard Temperature: 12.81°C

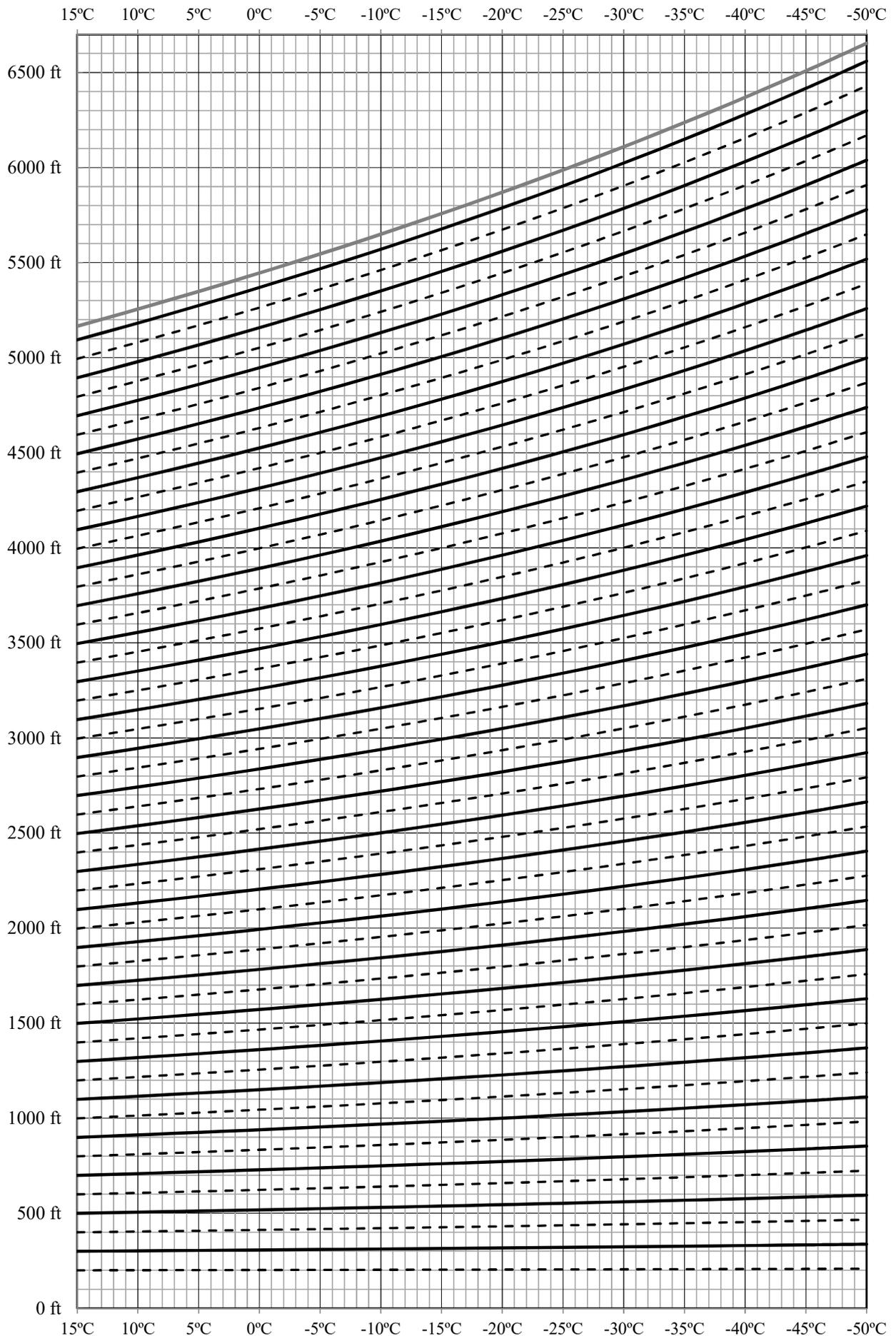
Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL

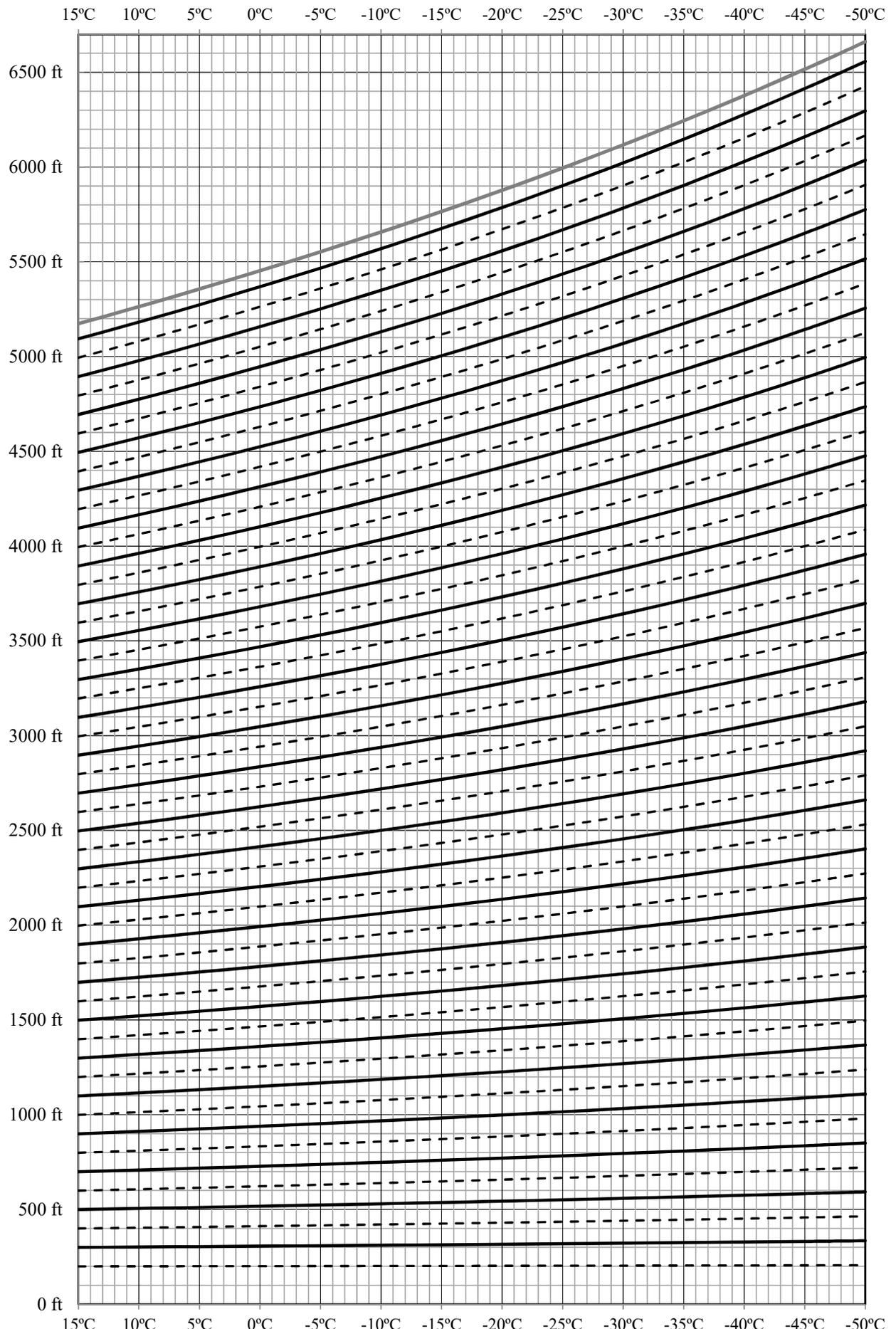


Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature



Altitude
MSL



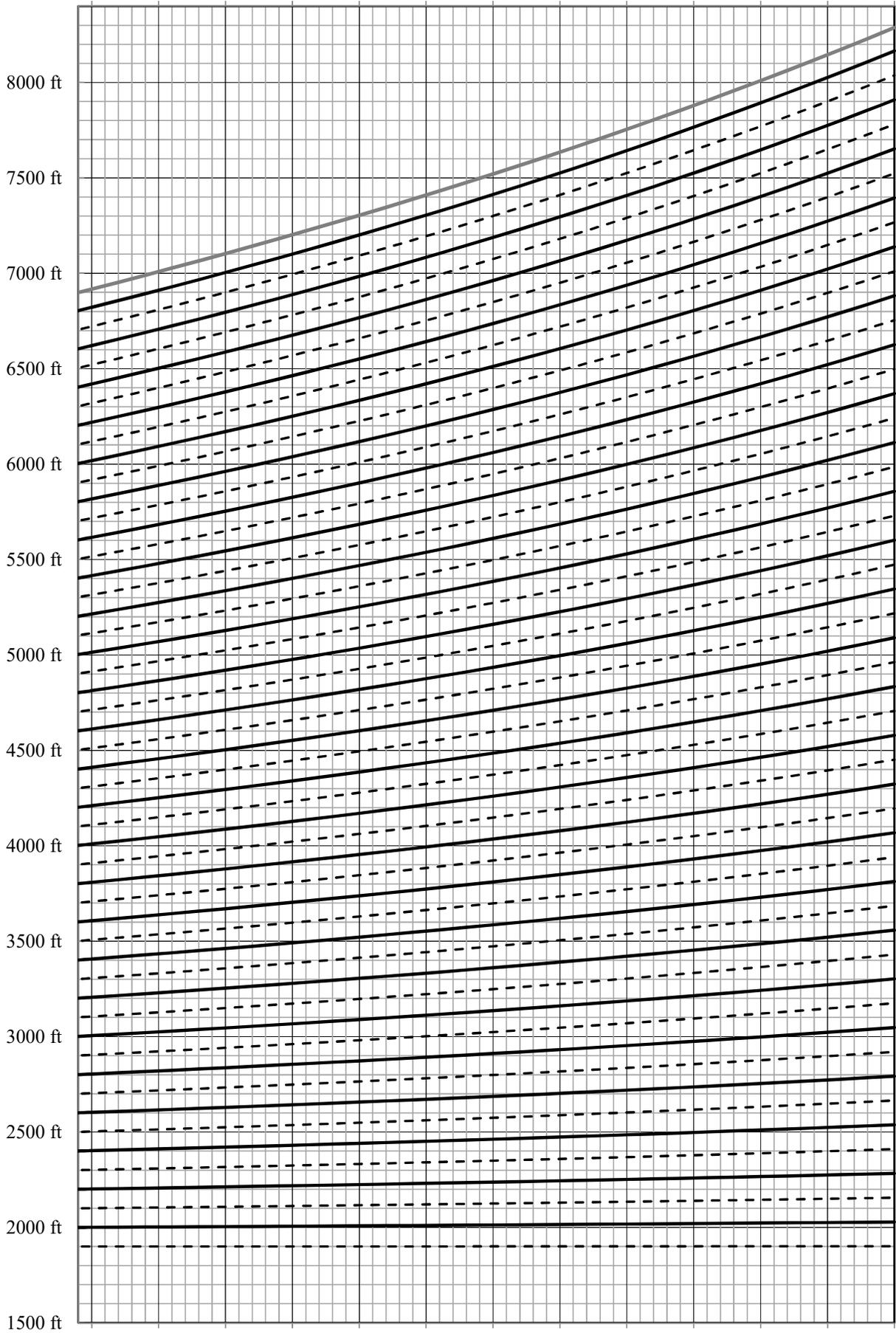


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Altitude
MSL

10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C

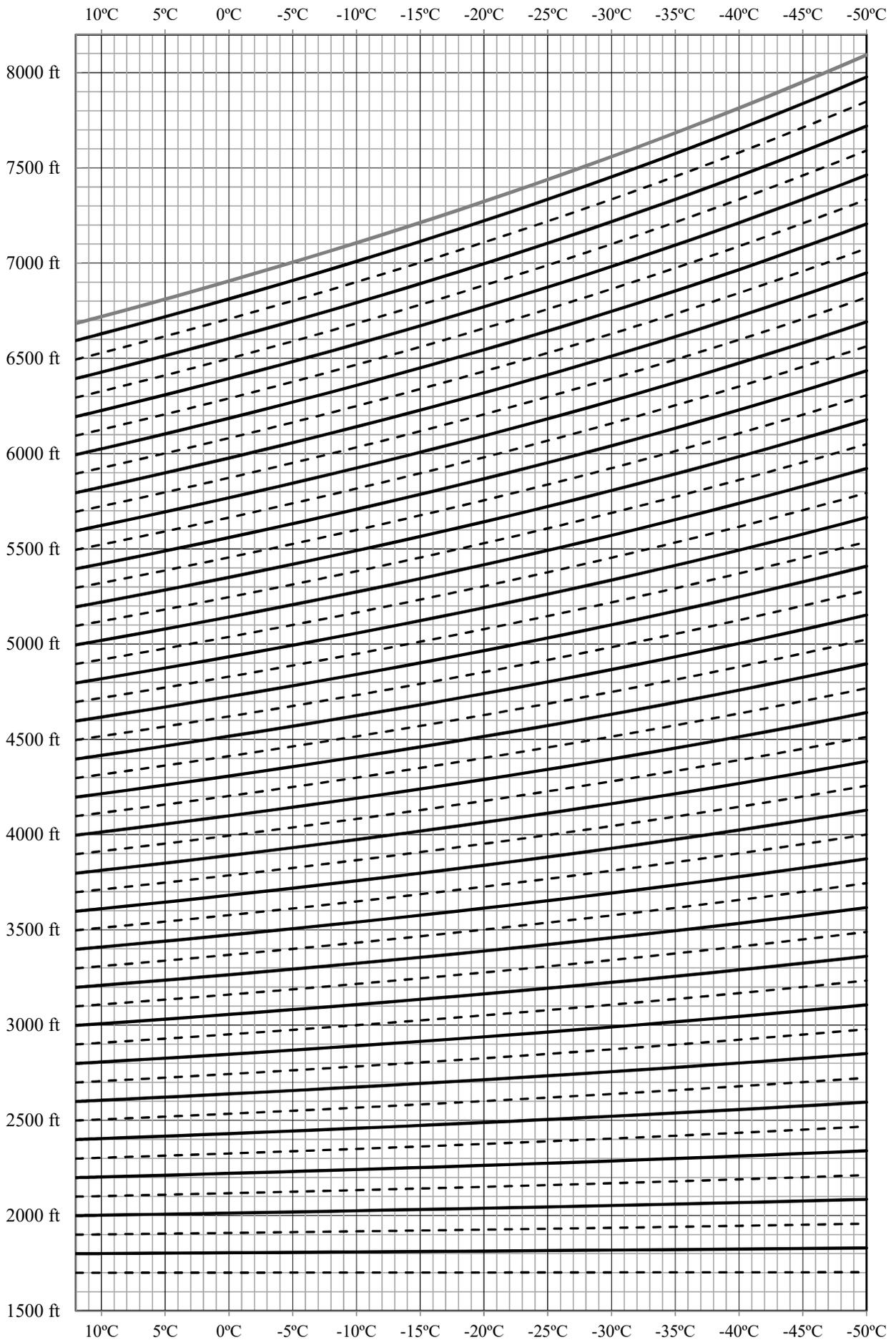


Airport: CYXE - Saskatoon, SK, CANADA. Station Elevation: 1690 feet.

ISA Standard Temperature: 11.65°C

Altitude (MSL) Corrected for Cold Temperature

Altitude
MSL





14 Yukon Airports

14.1 CYXY - WHITEHORSE, YT, CANADA84

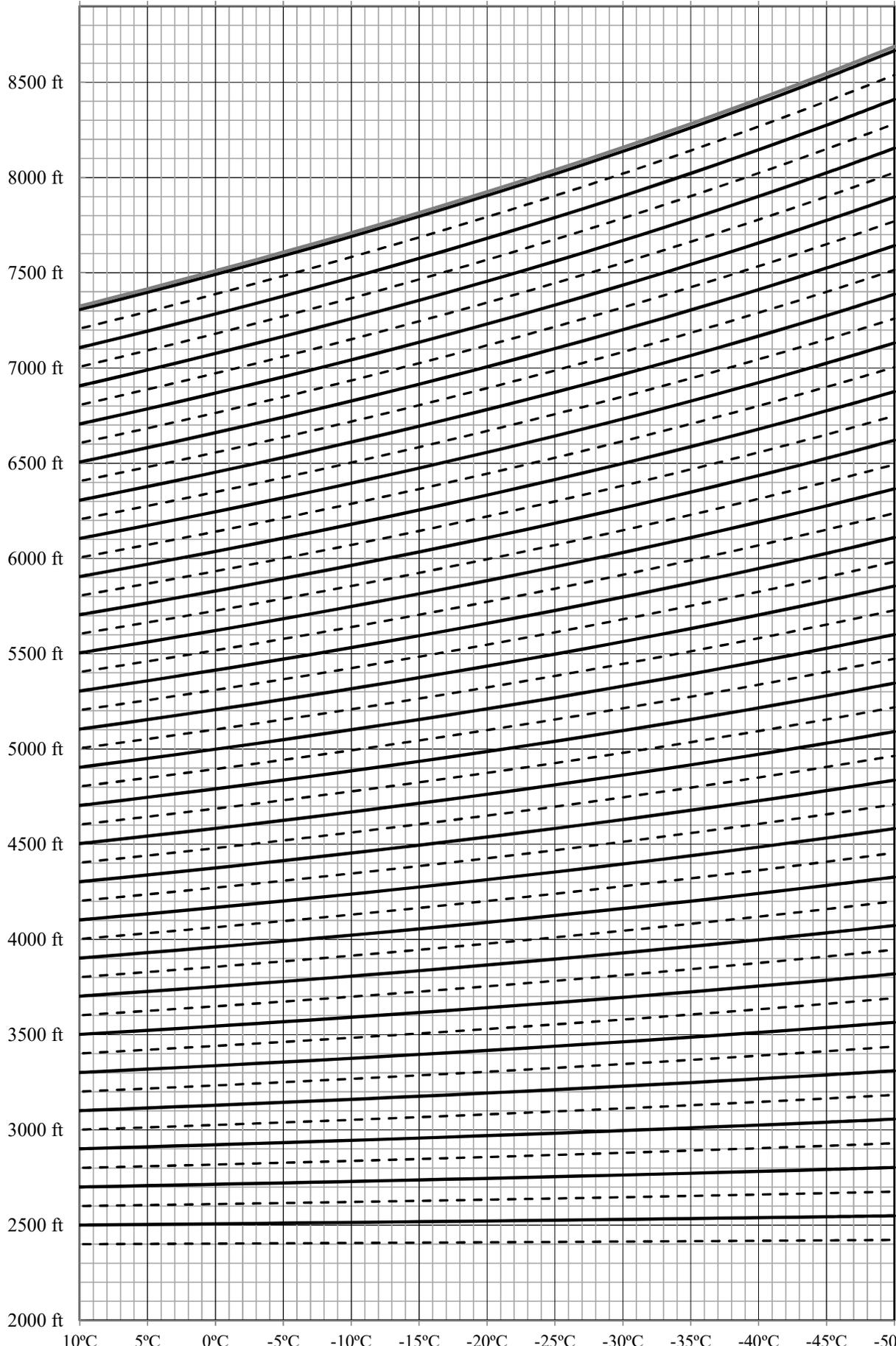
Airport: CYXY - Whitehorse, YT, CANADA. Station Elevation: 2317 feet.

ISA Standard Temperature: 10.41°C

Altitude
MSL

Altitude (MSL) Corrected for Cold Temperature

10°C 5°C 0°C -5°C -10°C -15°C -20°C -25°C -30°C -35°C -40°C -45°C -50°C



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