



## 1. TITLE OF THE CERTIFICATE (NL)

**Diploma Beroepsonderwijs**  
**Kwalificatie: Technicus industriële koude- en klimaatsystemen**  
**Kwalificatiedossier: Koude- en klimaatsystemen**

In the original language

## 2. TRANSLATED TITLE OF THE CERTIFICATE (EN)

**Certificate Senior Secondary Vocational Education**  
**Qualification: Technician industrial refrigeration and climate control systems**  
**Qualification file: Refrigeration and climate control systems**

This translation has no legal status

## 3. PROFILE OF SKILLS AND COMPETENCES

Core task 1: Prepares work on refrigeration and/or climate systems and installs components

- 1.1 Prepares work on refrigeration and/or climate systems
- 1.2 Disassembles components and pipe systems from refrigeration and/or climate systems
- 1.3 Installs and fits components in refrigeration and/or climate systems
- 1.4 Installs pipe systems for refrigeration and/or climate systems
- 1.5 Completes work on refrigeration and/or climate systems

Core task 2: Performs technical service work

- 2.1 Inspects and maintains complex industrial refrigeration and/or climate systems
- 2.2 Analyses and repairs faults in complex industrial refrigeration and/or climate systems
- 2.3 Commissions complex industrial refrigeration and/or climate systems

## 4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE

The Technician industrial refrigeration and climate control systems is employed at a company that installs, maintains and repairs professional systems for refrigeration and cooling, air treatment, comfort control and heat pump systems. These companies may be small or large in size and can operate regionally, nationally and internationally. The Technician industrial refrigeration and climate control systems performs work all refrigeration and climate systems, both commercial and industrial. He/she commissions systems. These systems are installed for the office and industrial building sector, the hospitality industry, the retail trade, the chemical and/or process industry, meat, fish and vegetable and food processing industry, the shipbuilding sector, etc. He/she can trace and repair faults and estimate whether parts of the system need to be replaced. He/she also carries out work on:

- large systems with water and water glycol as their secondary refrigerant, but also on systems in which other secondary refrigerants are used including CO<sub>2</sub>,
- industrial refrigeration and/or climate systems with refrigerants such as NH<sub>3</sub>, CO<sub>2</sub>, propane, isobutane and propylene
- complex systems such as pump circulation systems, thermosyphon systems, industrial cascade systems, two-stage compound systems and transcritical systems.

**\* Explanatory note**

This document is designed to provide additional information about the specified certificate and does not have any legal status in itself. The format of the description is based on the following texts: Council Resolution 93/C 49/01 of 3 December 1992 on the transparency of qualifications, Council Resolution 96/C 224/04 of 15 July 1996 on the transparency of vocational training certificates, and Recommendation 2001/613/EC of the European Parliament and of the Council of 10 July 2001 on mobility within the Community for students, persons undergoing training, volunteers, teachers and trainers.

More information is available at: <http://www.europass.cedefop.europa.eu/>

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## 5. OFFICIAL BASIS OF THE CERTIFICATE

<p><b>Name and status of the body awarding the certificate</b> The certificate issued on completion of the programme is signed by the examination board at the school where the pupil attended the programme.</p>	<p><b>Name and status of the national/regional authority providing accreditation/recognition of the certificate</b> Ministry of Education, Culture and Science</p>																				
<p><b>Level of the certificate (national or international)</b> Qualification level 4 of the Dutch VET qualification structure Characteristics: non-job related skills such as tactical and strategic capacities. The professional bears his or her own responsibility, which is not only related to practical implementation in terms of monitoring and supervision, but also a more formal, organisational responsibility. The range of tasks also includes drafting new procedures. NLQF-niveau 4 - EQF level 4 - ISCED 3A</p>	<p><b>Grading scale / Pass requirements</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">10</td><td>excellent</td></tr> <tr><td>9</td><td>very good</td></tr> <tr><td>8</td><td>good</td></tr> <tr><td>7</td><td>very satisfactory</td></tr> <tr><td>6</td><td>pass</td></tr> <tr><td>5</td><td>fail</td></tr> <tr><td>4</td><td>unsatisfactory</td></tr> <tr><td>3</td><td>very unsatisfactory</td></tr> <tr><td>2</td><td>poor</td></tr> <tr><td>1</td><td>very poor</td></tr> </table>	10	excellent	9	very good	8	good	7	very satisfactory	6	pass	5	fail	4	unsatisfactory	3	very unsatisfactory	2	poor	1	very poor
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<p><b>Access to next level of education/professions</b> Based experience and additional training, the Technician industrial refrigeration and climate control systems can advance to the position of Engineering technician refrigeration and climate systems, Planner, Service coordinator, Service manager refrigeration systems or Energy performance consultant. He can broaden or extend his knowledge of the techniques of other systems such as heat pumps and related geological or other technical professions. He can specialise in producing a system design or take up a management position. After obtaining the necessary practical experience and training, he can focus on another subject area of refrigeration engineering, for example heat pump application or system design.</p>	<p><b>International agreements</b> Technician industrial refrigeration and climate control systems is not a regulated profession in the Netherlands. However, the education and training for this profession on qualification level 4 is regulated under the European directive 2005/36/EC, amended by directive 2013/55/EU. The regulated education and training gives access to regulated professions at the level of a diploma according to article 11 of this directive.</p>																				
<p><b>Legal basis</b> Act on Vocational Education and Training (WEB), registered number of qualification (crebo): 25890 The education and training for this qualification is offered as of 01-08-2023.</p>																					

## 6. OFFICIALLY RECOGNISED WAYS OF ACQUIRING THE CERTIFICATE

<p>Senior secondary vocational education features two learning pathways: the school-based pathway (bol) and the training on the job pathway (bbl). In the school-based pathway, the majority of the course consists of theory at school. The extent of the practical component (vocational practice) is between 20% and 60%. In the training on the job pathway, the extent of vocational practice is at least 60% of the course. The participant works four days a week in a training company, and attends school for theory subjects just one day a week. In principle it is possible to follow both learning pathways, but which pathway is offered will depend on the individual educational institution.</p>	
<p><b>Average duration of the education/ training leading to the certificate</b></p>	<p><b>3 years (4800 study hours) (depending on previous education)</b></p>
<p><b>Entry requirements</b> The certificate preparatory vocational secondary education (vmbo) advanced vocational programme, combined programme, or theoretical programme, or a comparable level.</p>	

## 7. ADDITIONAL INFORMATION

<p>Dutch senior secondary VET is based on qualification files, that each contain one or more qualifications. The information included in part 3 and 4 is derived directly from the qualification file determined by the Minister of Education, Culture and Science. The complete qualification file can be found at <a href="http://kwalificaties.s-bb.nl">kwalificaties.s-bb.nl</a>, only in Dutch.</p>
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## 7. ADDITIONAL INFORMATION

Optional subjects are linked to the qualification. The optional subjects have a total size of 15% of the course duration. The optional subjects completed by the student are listed on the certificate.

Additional information, including a description of the Dutch national qualifications system, is available at the Netherlands National Reference Point (NRP): [www.s-bb.nl](http://www.s-bb.nl). The NRP is the information centre for vocational qualifications in the Netherlands. SBB has been appointed in this capacity by the Ministry of Education, Culture and Science.