



## 1. TITLE OF THE CERTIFICATE (NL)

**Diploma Beroepsonderwijs**  
**Kwalificatie: Eerste monteur koude- en klimaatsystemen**  
**Kwalificatiedossier: Koude- en klimaatsystemen**

In the original language

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

**Certificate Senior Secondary Vocational Education**  
**Qualification: Skilled mechanic 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 cooling and climate control systems and installs parts

- 1.1 Prepares work on cooling and climate control systems
- 1.2 Dismantles components and piping systems of cooling and climate control systems
- 1.3 Places and installs parts in cooling and climate control systems
- 1.4 Installs pipe systems for cooling and climate control systems
- 1.5 Completes work on cooling and climate control systems

Core task 2: Supervises and carries out work on complex cooling and climate control systems

- 2.1 Determines the position of subproducts and the route to be followed by pipelines in systems
- 2.2 Tests and adjusts cooling and climate control systems
- 2.3 Supervises work

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

The Skilled mechanic refrigeration and climate control systems (Skilled mechanic R&CS) works at a company which installs, maintains and repairs professional refrigeration & climate control, air treatment, comfort technology and heat pump systems. He carries out work on commercial refrigeration systems, air conditioners and heat pump systems. Furthermore, he also works on larger systems with water and water-glycol as a secondary refrigeration substance, but also systems in which other secondary refrigeration substances are applied, among which CO<sub>2</sub>, such as:

- Industrial refrigeration and climate control systems with refrigeration substances such as NH<sub>3</sub>, CO<sub>2</sub>, propane, isobutene and propylene;
- Complex systems such as pump circulation systems, thermosyphon systems, industrial cascade systems, dual-step & compound systems and transcritical systems.

According to article 2 of the 'Fluorinated greenhouse gasses and regulated refrigeration substances regulations', the Skilled mechanic R&CS is required to possess a 'Fluorinated greenhouse gasses and regulated refrigeration substances regulations' diploma. The education of this diploma is not included in the Skilled mechanic R&CS qualification.

**\* 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 3 of the Dutch VET qualification structure Characteristics: implementation of more than just the own block of tasks. The professional is able to account for his or her actions towards colleagues, and monitors and supervises the work of others. The range of tasks also includes drafting work preparation procedures. NLQF-niveau 3 - EQF level 3 - ISCED 3C</p>	<p><b>Grading scale / Pass requirements</b></p> <table style="border: none;"> <tr><td>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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6	pass																				
5	fail																				
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3	very unsatisfactory																				
2	poor																				
1	very poor																				
<p><b>Access to next level of education/professions</b> Based on work experience and further education, the Skilled mechanic refrigeration and climate control systems (Skilled mechanic R&amp;CS) can develop to become a Technician maintenance R&amp;CS or Technician engineering R&amp;CS. He can specialise in technical aspects or perhaps other technical professions. He can specialise in building more complex systems with other refrigeration substances. After the required work experience and education, he can focus on energy reporting and advising within the area of the Energy Performance Building Directive (EPBD), among others.</p>	<p><b>International agreements</b> Skilled mechanic refrigeration and climate control systems is not a regulated profession in the Netherlands. However, the education and training for this profession on qualification level 3 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): 25281 The education and training for this qualification is offered as of 01-08-2015.</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> <p>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.</p>
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## 7. ADDITIONAL INFORMATION

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.