



Welder (MAG)

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| <p>1. Name of qualification</p> | <p>Arc welder in welding with mechanical machine in an active gas environment (MAG).</p> |
| <p>2. Sector of the national economy</p> | <p>Metalworking, industrial production, agriculture</p> <p>Related professions: Hand arc welder (MMA), 3 NQF Gas Welder (OAW), 3 NQF Arc welder welding with mechanized equipment in an inert gas environment (MIG), 3 NQF Arc welder welding with a tungsten electrode in an inert gas environment (TIG), 3 NQF</p> |
| <p>3. Qualification level:</p> | <p>3 NQF</p> <p>Individually or in a team, according to the instructions of a qualified specialist, perform certain simple metalworking works and be responsible for the results of the work performed.</p> <p>Demonstrates basic knowledge and skills in practice, does not make decisions independently, professional experience does not exceed 1 year.</p> |
| <p>4. Description of profession/occupation:</p> | <p>The arc welder performs welding works using electric arc welding equipment, materials and technological techniques, manufactures metal products and structures from steel in accordance with technical regulations, performs assembly and repair works in compliance with labor and environmental protection regulations.</p> <p><u>Regulation of the profession, additional requirements:</u> Qualification and professional competence are certified in accordance with the requirements of international standards and regulatory acts of the national country.</p> <p>Main tasks:</p> <ol style="list-style-type: none"> 1. Understand the task according to the technical documentation 2. Preparation of parts and workpiece for welding 3. Carrying out welding work 4. Evaluation of the quality of the work performed 5. Maintenance of workplace and welding equipment in order 6. Compliance with labor protection regulations, environmental protection conditions <p>Professional knowledge</p> <p><u>At the conceptual level:</u></p> <ol style="list-style-type: none"> 1. Nondestructive testing methods (standards EN ISO 17637, EN ISO 17636). 2. Destructive control methods (eg EN ISO 9017). |



3. Normative technical documentation (standards EN ISO 17637, EN ISO 6520-1; EN ISO 5817).
4. Nondestructive testing (NDT) of seams.

At the level of understanding:

1. Labeling of personal protective equipment.
2. Technological documentation of welding.
3. Technical documentation of welding works.
4. Physical, chemical, mechanical and technological properties of additives and auxiliary materials.
5. Types of mechanical cleaners. Methods of cleaning metal surfaces.
6. Technology of welding work.
7. Types of edge preparation of parts and workpieces.
8. Selection of assembly gaps (standards EN ISO 9692-1).
9. Determining the positional correspondence of an assembly.
10. Measurement and control methods.
11. Types of welding wires.
12. Sequence of execution of welds and welding works.
13. Effects of voltage and strains on the geometry of the product or control sample.
14. Operating requirements for welding equipment.
15. Basic principles of operation of the supply and exhaust ventilation system.

At the usage level:

1. Selection of personal protective equipment according to the label and usage.
2. Usage of collective protection measures.
3. Protective equipment for hand-held power tools.
4. Hand tools for pre-welding and post-welding work.
5. Auxiliary devices for assembling the parts to be welded before welding.
6. Protective devices of welding equipment and their compliance with safety requirements.
7. Welding cables and their compliance with labor protection requirements.
8. Welding equipment operating instructions.
9. Reading drawings.
10. Designations of welds.
11. Welding procedure specification designations.
12. Construction of welding equipment. Welding torches and their components.
13. Shielding gas in the welding process.
14. Types of auxiliary devices for fastening workpieces and parts in different spatial positions.
15. Basic material designations and supplementary material designations (standards EN ISO 14341, EN ISO 14343) and auxiliary material designations.



16. Methods of using measuring instruments.
17. Application of cleaning agents. Safe use of chemicals.
Mechanical cleaning of metal surfaces.
18. Application of edge processing equipment and tools.
19. Ways of fixing parts.
20. Application of auxiliary devices for fixing parts and workpieces.
21. Use of welding tables.
22. Use of welding equipment.
23. Application of welding modes for welding materials of different thicknesses.
24. Effect of parameters of welding modes on the quality of the seam.
25. Designations of welding wires (standard EN ISO 14341, EN ISO 14343).
26. Use of splash guards.
27. Selection of welding wire.
28. Use of shielding gas.
29. Application of safe welding techniques.
30. Application of individual and collective protective measures.
31. Classification of welding defects (standard EN ISO 6520-1).
32. Causes of defects.
33. Welding work in areas of increased danger.
34. Measuring instruments and means of control. Uniform visual assessment criteria.
35. Techniques for eliminating imperfections of geometric shape.
36. Measuring instruments and means of control.
37. Fire safety instructions and actions in case of fire.
38. Assembly of the welding workplace.
39. Storage requirements for welding equipment.

General knowledge

1. Professional terminology.
2. Time management techniques.
3. Units and formulas.
4. Calculation.
5. Work safety instruction at the workplace.
6. Work safety signs and signals.
7. Electrical safety rules. Fire safety regulations.
8. Environmental protection requirements.
9. The latest welding technologies.

Skills and attitudes: (what the employee can do)

1. Uses individual and collective means of work protection.
2. Assesses the compliance of tools and auxiliary devices



- with the work task and occupational safety requirements.
3. Observes the operating instructions of the welding equipment.
 4. Reads the working drawing.
 5. Reads welding documentation.
 6. Chooses the necessary welding equipment.
 7. Familiarizes himself with basic materials and auxiliary materials used in work.
 8. Cleans the surfaces to be welded.
 9. Assembles parts or workpieces.
 10. Prepares the welding machine for work.
 11. Prepares the welding torch and its components for welding.
 12. Chooses and sets welding modes.
 13. Chooses welding consumables and consumables.
 14. Welds seams.
 15. Visually assess the welds.
 16. Evaluates the geometric parameters of the product or control sample.
 17. Prepares the workplace for work.
 18. Maintains the workplace in order during the work process.
 19. Arranges the workplace to finish the job.

Competences

1. Ability to responsibly use individual and collective protective equipment.
2. The ability to assess the compliance of the welding equipment's protective equipment, tools and auxiliary devices with the work task and occupational protection requirements.
3. Ability to follow and apply the conditions of the operating instructions of the welding equipment.
4. Ability to read the work drawing and welding documentation according to the work task.
5. Ability to carefully select welding equipment and accessories according to the work task.
6. Ability to get acquainted with the basic materials and auxiliary materials used in the work.
7. The ability to qualitatively clean the surfaces to be welded and prepare the edges of parts or workpieces according to the work task.
8. Ability to accurately assemble parts or workpieces.
9. Ability to prepare welding equipment and equipment for welding.
10. Ability to accurately select and set welding modes, using appropriate additives and auxiliary materials and following technical standards.
11. The ability to accurately weld corner welds: horizontal, vertical position, in the lower position (PA), in the vertical (from bottom to top) (PF).
12. Ability to accurately weld butt welds (BW): bottom



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| | <p>position (PA), vertical (bottom up) (PF) position.</p> <p>13. Ability to independently identify and correct welding defects.</p> <p>14. Ability to visually evaluate welds according to the uniform evaluation criteria</p> <p>15. The ability to evaluate the geometric parameters of the product or control sample after welding in accordance with the regulatory requirements, to eliminate the imperfections of the geometric shape.</p> <p>16. The ability to organize, maintain and organize the workplace and the surrounding work environment in accordance with the occupational safety requirements at the workplace</p> |
| <p>5. Requirements for obtaining a qualification:</p> | <p>Obtained professional qualification.</p> <p>FORMAL REQUIREMENTS for documenting education: certificate of vocational education/qualification certificate.</p> <p>In addition, the employer may request/want: other diplomas, certificates, certificates proving qualifications that are useful for the welder's profession</p> |
| <p>6. Ways to obtain qualifications:</p> | <p>To learn in professional education schools.</p> <p>To learn in a working environment, through self-study, proving the knowledge, skills and competences acquired as a result of outside formal education and passing a qualification exam and obtaining a qualification certificate.</p> |
| <p>7. Criteria for evaluating competencies:</p> | <p>Testing/assessing the learning outcomes (knowledge, skills and competences) required to perform simple/not too complex professional tasks in the workplace includes 5 sets of learning outcomes.</p> <p>Ability to understand the work assignment and its technical documentation Employee Criteria</p> <ol style="list-style-type: none"> 1. reads the working drawing; 2. reads welding documentation; 3. chooses the necessary welding equipment; 4. recognizes support devices; 5. gets acquainted with the basic materials used in the work; 6. familiar with additives and auxiliary materials used in work <p>Preparation of parts and workpieces for welding Employee Criteria</p> <ol style="list-style-type: none"> 1. cleans welding surfaces; 2. prepares the edges of parts or workpieces; 3. assembles parts or workpieces; |



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| | <p>4. fixes parts or workpieces.</p> <p>Carrying out welding work Employee Criteria</p> <ol style="list-style-type: none"> 1. prepares the welding equipment for work; 2. prepares the welding torch and its components for welding; 3. selects welding modes; 4. sets welding modes; 5. chooses supplementary materials and consumables; 6. welds seams. <p>Evaluation of the quality of the work performed Employee Criteria</p> <ol style="list-style-type: none"> 1. visually assess the welds; 2. evaluates the geometric parameters of the product or control sample; 3. evaluates weld imperfections using destructive and non-destructive methods. <p>Maintenance of workplace and welding equipment in order Employee Criteria</p> <ol style="list-style-type: none"> 1. prepares the workplace for work; 2. maintains the workplace in order during the work process; 3. arranges the workplace to finish work. |
| <p>8. Methods of assessment of the competences forming the qualification:</p> | <p>Employee self-assessment Examination of the employee's knowledge Testing of employees' practical skills</p> |
| <p>9. Career opportunities for a person who has acquired the qualification:</p> | <p>Continue to improve skills and abilities in the work environment. Obtain a qualification in another type of welding. Get a higher level qualification.</p> |

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