

# EUROPASS DIPLOMA SUPPLEMENT

## TITLE OF THE DIPLOMA (ES)

*Técnico en Conformado por Moldeo de Metales y Polímeros*

## TRANSLATED TITLE OF THE DIPLOMA (EN)<sup>(1)</sup>

*Technician in Metal and Polymer Moulding Forming*

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(1) This translation has no legal status

## DIPLOMA DESCRIPTION

**The holder of this diploma will have acquired the General Competence with regard to:**

Performing the processes leading to metal alloy casting and polymer and composite processing, preparing raw materials, preparing and controlling the operation of installations, machinery and equipment, and checking the characteristics of the products obtained, complying with the specifications on quality, safety and environmental preservation.

**Within this framework, the PROFESSIONAL MODULES and their respective LEARNING OUTCOMES acquired by the holder are listed below:**

### "Graphical Interpretation"

The holder:

- Determines the shape and the dimensions of the products to be manufactured, interpreting the symbols represented in the plans.
- Identifies the tolerances of shapes and dimensions and other characteristics of the products to be manufactured, analysing and interpreting the technical information comprised in the manufacturing drawings.
- Draws equipment and tool sketches for the processes to be implemented, defining the construction solutions for each case.
- Interprets automation schemes of machinery and equipment, identifying the elements represented in pneumatic, hydraulic, electric, programmable and non-programmable installations.

### "Conditioning of Machinery and Installations of Automated Processes"

The holder:

- Characterises production automated equipment and auxiliary systems, relating them to their function and application to manufacturing processes.
- Adapts programmes of automated systems, relating their operation to the objectives of each stage.
- Prepares services and auxiliary systems for the operation of the process, identifying the elements or the components and establishing the monitoring parameters of the process.
- Controls the response of automated systems, analysing and adjusting the variable parameters of the system.
- Maintains equipment and installations, relating their functionality to the required operations for the user maintenance.

### "Manufacturing of Moulds and Models"

The holder:

- Characterises the models and moulds manufacturing process, relating the processes to obtain pieces by moulding to the different types of moulds.
- Obtains mixtures of sands, polymers and additives for moulding, analysing the sequence of incorporation of the products.
- Manufactures moulds and models, relating the stages of the process to their characteristics.
- Assembles models and moulds, relating them to the sequence of operations and the tools required.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks and the measures and the equipment to prevent them.

### "Closed Moulding Forming"

The holder:

- Organises the tasks related to closed moulding forming, analysing the process sheet.
- Prepares fusion and moulding facilities, interpreting conditioning techniques and procedures for ovens, injection machines and automatic processes.
- Obtains products by closed moulding, applying specific fusion and moulding techniques.

- Maintains machinery, moulds and tools, relating their functionality to the required operations for the user maintenance.
- Complies with the rules on labour risk prevention and environmental protection, identifying the associated risks and measures and equipment to prevent them.

### **“Open Moulding Forming”**

The holder:

- Determines resources for the transformation processes by open moulding, relating the equipment, tools and implements to the product to be obtained.
- Performs operations regarding the preparation of transformation processes by open moulding, interpreting set instructions for manufacturing.
- Obtains products by open moulding, relating the stages to the means used and the parameters to be monitored.
- Prepares resources for the finishing processes, relating the equipment, the tools and the implements to the quality of the product to be obtained.
- Performs finishing and assembly processes, relating the stages to the means used and the parameters to be monitored.
- Complies with the rules on labour risk prevention and environmental protection, relating the associated risks to the measures and the equipment to prevent them.

### **“Conditioning of Raw Materials”**

The holder:

- Characterises the influence of metallic raw materials in the process leading to obtain pieces by moulding, relating their characteristics to manufacturing parameters.
- Characterises the influence of polymeric raw materials and additives in the process leading to obtain pieces by moulding, relating their characteristics to manufacturing parameters.
- Obtains mixtures of polymers, analysing the sequence of product incorporation.
- Performs storage operations of raw materials and finished products, relating the use and preservation conditions to their characteristics.

### **“Metrology and Tests”**

The holder:

- Prepares tools, equipment for verification and destructive and non-destructive testing, selecting the tools and applying the required techniques and procedures.
- Controls product dimensions, geometry and surfaces, calculating measures and comparing them with the specifications of the product.
- Detects deviations in automatic processes, analysing and interpreting process control charts.
- Controls the characteristics and the properties of the manufactured product, calculating the value of the parameter and comparing the results with the product's specifications.
- Acts according to the procedures and quality regulations regarding the competences of the professional profile, relating them the quality systems and models.

### **“Professional Training and Guidance”**

The holder:

- Selects job opportunities, identifying the different possibilities of labour integration, and the alternatives of lifelong learning.
- Applies teamwork strategies, assessing their effectiveness and efficiency on the achievement of the company's goals.
- Exercises rights and complies with the duties derived from labour relationships, recognising them in the different job contracts.
- Determines the protective action of the Spanish Health Service in view of the different covered eventualities, identifying the different types of assistance.
- Assesses the risks derived from his/her activity, analysing job conditions and the risk factors present in his/her labour setting.
- Participates in the development of a risk prevention plan for a small enterprise, identifying the responsibilities of all the agents involved.
- Applies protection and prevention measures, analysing risk situations in the labour setting of the Technician in Metal and Polymer Moulding Forming.

### **“Business and Entrepreneurial Initiative”**

The holder:

- Recognises skills related to entrepreneurial initiative, analysing the requirements derived from job positions and business activities.
- Defines the opportunity of creating a small enterprise, assessing the impact on the sphere of action and incorporating ethic values.

- Carries out the activities for the setting-up and the implementation of a company, choosing its legal structure and identifying the associated legal obligations.
- Carries out basic administrative and financial management activities of an SME, identifying the main accounting and tax obligations and filling in documentation.

### **“On the Job Training”**

The holder:

- Identifies the company’s structure and organization relating them to production and marketing of the products obtained.
- Applies labour and ethic habits in his/her professional activity according to the characteristics of the job position and the procedures established by the company.
- Prepares raw materials according to the instructions of the process, applying regulations on labour risk prevention and environmental protection.
- Develops models, moulds and plugs for the moulding process, applying construction techniques and regulations on labour risk prevention and environmental protection.
- Prepares the installations for the moulding process, adjusting its parameters and applying regulations on labour risk prevention and environmental protection.
- Obtains moulded pieces according to established procedures and applying regulations on labour risk prevention and environmental protection.
- Applies finishing techniques to moulded pieces, following the process and observing prevention and environmental protection regulations.
- Verifies the quality of moulded products, applying metallographic and metrological techniques, and observing regulations on labour risk prevention and environmental protection.

### **RANGE OF OCCUPATIONS ACCESIBLE TO THE HOLDER OF THE DIPLOMA**

The Technician in Metal and Polymer Moulding Forming works in those sectors related to processing industries of metals and rubber, or every industry in which the product or raw material to be used is a polymer, where he/she is able to work in casting companies and polymer transformation industries.

The most relevant occupations or jobs are the following:

- Operator of secondary smelting furnaces.
- Operator of melting furnaces
- Technician in gravity die casting
- Fitter of injection and low pressure machinery
- Operator of metal alloys casting machinery
- Fitter of moulds and cores
- Hand moulder
- Machine-assisted moulder
- Machine-assisted coremaker
- Mould and core machinery operator
- Rubber mixing machinery operator
- Rubber cutting machinery operator
- Rubber polishing machinery operator
- Rubber and hybrid products assembler
- Plastic and hybrid products assembler
- Rubber products manufacturing machinery operator
- Rubber stamps manufacturing machinery operator
- Rubber products vulcanising machinery operator
- Rubber and gum products finishing machinery operator
- Rubber products moulding and vulcanising machinery operator
- Tyre manufacturing verifier
- Tyre retreading machinery operator
- Tyre moulding machinery operator
- Rubber cylinder manufacturer. Press operator. Adhesive operator
- Mixing machinery operator
- Thermoplastic transformation machinery operator
- Injection machinery operator
- Extruding machinery operator
- Calender operator
- Thermoplastic crushing machinery operator
- Polyester moulds and models maker
- Resin moulds preparation machinery operator
- Synthetic resin manufacturing machinery operator

- Thermosetting products and polymer-matrix composites transformation machinery operator
- Composite products assembler
- Composite hand operator

### **AWARD, ACCREDITATION AND LEVEL OF THE DIPLOMA**

**Name of the body awarding the diploma on behalf of the King of Spain:** Spanish Ministry of Education or the different Autonomous Communities according to their areas of competence. The title has academic and professional validity throughout Spain

**Official duration of the education/ training leading to the diploma:** 2000 hours.

**Level of the diploma (national or international)**

- NATIONAL: Non-University Higher Education
- INTERNATIONAL:
  - Level 3 of the International Standard Classification of Education (ISCED3)
  - Level \_\_\_\_\_ of the European Qualifications Framework (EQF\_\_).

**Entry requirements:** Holding the Certificate in Compulsory Secondary Education or holding the corresponding access test.

**Access to next level of education/training:** This diploma provides access to University studies.

**Legal basis:** Basic regulation according to which the diploma is established:

- Minimum teaching requirements established by the State: Royal Decree 387/2011, of 18 March, according to which the diploma of Technician in Metal and Polymer Moulding Forming and its corresponding minimum teaching requirements are established.

**Explanatory note:** This document is designed to provide additional information about the specified diploma and does not have any legal status in itself.

## INFORMATION ON THE EDUCATION SYSTEM

