

Assessment Evidence Guide

For

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Level-2

Module name
(Formative Assessment)

8th -12th March 2021



**National Vocational & Technical
Training Commission**

Title of Qualification: Caster-II	CS Code:	Level: 2	Version: 01
Competency Standard Title: Operate Pressure Die Casting	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment) as per the instructions given in Annexure A:</p> <p>Assessment Task 1: Candidate is required to: Conduct pre-operational checks</p> <p>Assessment Task 2: Candidate is required to: Operate machine control panel.</p> <p>Assessment Task 3: Candidate is required to: Monitor melt in furnace</p> <p>Assessment Task 4: Candidate is required to: Operate machine to produce castings</p> <p>Assessment Task 5: Candidate is required to: Perform Post Casting Operation</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <ul style="list-style-type: none"> • Start machine according to standard operating procedures. • Clamp the two halves of the die inside die casting machine as per SOP • Inspect the opening and closing function of die as per SOP • Inspect function of ejector and cooling system of die • Adjust component gripper if necessary.

	<ul style="list-style-type: none"> Adjust die spray nozzles as necessary.
	Assessment Task 2 <ul style="list-style-type: none"> Set die opening limit Adjust shot size as per requirement Make functional check of the picking robot if required Adjust operating parameters of machine at given specifications
	Assessment Task 3 <ul style="list-style-type: none"> Handle furnace according to standard operating procedures. Maintain liquid metal as per die operating condition Control furnace temperature at optimum operating condition Ensure safe work practices in handling furnace
	Assessment Task 4 <ul style="list-style-type: none"> Clean each die half as per requirement Lubricate die to facilitate the ejection of part Close two halves of the die and clamp mold together Apply sufficient force to the die to keep it securely closed Transfer molten metal into the chamber as per SOPs Inject the molten metal with required pressure into the die/mold Fill the entire cavity of die Open the die after casting solidification Eject the casting out of the die cavity Clamp shut the die for the next injection
	Assessment Task 5 <ul style="list-style-type: none"> Trim excess material along with any flash from castings Ensure efficient flow of finished product i.e. breaking of runners, stacking baskets, bins, conveyors Inspect castings visually for porosity, cracks, tears, splits, sinks, cold shuts, tinning and die surface crazing Handle castings to minimise risk of damage to the casting and injury to personnel
	Portfolios required at the time of assessment (if any) for

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Each Assessment Task (with performance criteria)				
Assessment Task 1		Description of assessment task 1		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Start machine according to standard operating procedures.			
2.	Clamp the two halves of the die inside the die casting machine as per SOP			
3.	Inspect the opening and closing function of die as per SOP			
4.	Inspect function of ejector and cooling system of die			
5.	Adjust component gripper if necessary.			
6.	Adjust die spray nozzles as necessary.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of assessment task 2		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Set die opening limit			
2.	Adjust shot size as per requirement			
3.	Make functional check of the picking robot if required			
4.	Adjust operating parameters of machine at given specifications			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of assessment task 3		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Handle furnace according to standard operating procedures.			
2.	Maintain liquid metal as per die operating condition			
3.	Control furnace temperature at optimum operating condition			
4.	Ensure safe work practices in handling furnace			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 4		Description of assessment task 4		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Clean each die half as per requirement			
2.	Lubricate die to facilitate the ejection of part			
3.	Close two halves of the die and clamp mold together			
4.	Apply sufficient force to the die to keep it securely closed			
5.	Transfer molten metal into the chamber as per SOPs			
6.	Inject the molten metal with required pressure into the die/mold			
7.	Fill the entire cavity of die			
8.	Open the die after casting solidification			
9.	Eject the casting out of the die cavity			
10.	Clamp shut the die for the next injection			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 5		Description of assessment task 5		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Trim excess material along with any flash from castings			
2.	Ensure efficient flow of finished product i.e. breaking of runners, stacking baskets, bins, conveyors			
3.	Inspect castings visually for porosity, cracks, tears, splits, sinks, cold shuts, tinning and die surface crazing			
4.	Handle castings to minimise risk of damage to the casting and injury to personnel			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Title of Qualification: Caster-II	CS Code:	Level: 2	Version: 01
Competency Standard Title: Operate Pressure Die Casting	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Title of Qualification: Caster-II	CS Code:	Level:2	Version: 01
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WRITTEN ASSESSMENT

Question	Candidate's answer
1. How does the low pressure die casting works?	<ul style="list-style-type: none"> Die is filled with metal from a pressurized furnace, with pressures typically around 0.7 bar. The holding furnace is positioned in the lower part of the vertical die casting machine, with the molten metal injected upwards directly into the bottom of the mould.
2. Define High pressure die casting?	<ul style="list-style-type: none"> Process in which molten metal is forced under pressure into a securely locked metal die cavity, where it is held by a powerful press until the metal solidifies
3. Which 2 types of systems are used for injecting molten metal into the die?	<ul style="list-style-type: none"> Hot chamber system Cold chamber system
4. Define impregnation process in casting?	<ul style="list-style-type: none"> A sealing technique, designed to seal porosity and eliminate leakage problems in castings.
5. Which metal alloys are used for high pressure die casting?	<ul style="list-style-type: none"> Aluminum alloys.
6. Mention some advantages of pressure die casting?	<ul style="list-style-type: none"> Low costs Close dimensional tolerances Good surface finish Thin wall casting so lighter in weight
7. What are 2 types of pressure die casting?	<ul style="list-style-type: none"> High pressure die casting Low pressure die casting

Question	Candidate's answer
8. When to use low pressure die casting?	<ul style="list-style-type: none"> Commonly used for larger and non-critical parts

Annexure A:

