

Instructional Activities and Assessments

Absorb, Do and Connect Activities

Here are some sample assessment activities for the EZ Block Sizer instructional design project. I have included Absorb, Do and Connect activities in this document.

I would provide the following note (reminder) on each activity for learners that may need to increase the size of the text or images used in these activities.

NOTE: If needed, use the Zoom feature in your Internet browser settings (or software application) to increase the size of the instruction text and screen images in the activities.



Read User Guide (Absorb Activity)

I have listed the different terminal and enabling objectives that will be addressed by this Absorb (reading) activity. This absorb activity takes place before the learner engages with any of the assessment (Do and/or Connect) activities.

Terminal Objective:

The mechanical engineer will access the web-based EZ Block Sizer software via a computer.

Enabling Objectives:

- Using a computer, the mechanical engineer will open a web browser and enter the EZ Block Sizer software URL into the browser address field on the first attempt.
- Using a computer, the mechanical engineer will enter the user name and password to log in to the EZ Block Sizer software on the first attempt.

Terminal Objective:

The mechanical engineer will navigate to the various pages in the EZ Block Sizer software.

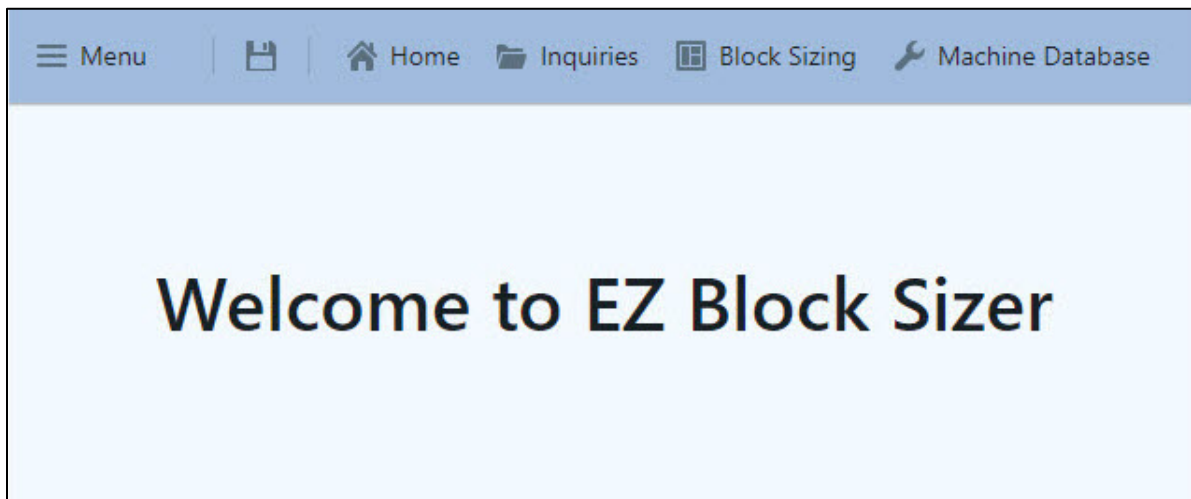
Enabling Objective:

Using a computer, the mechanical engineer will locate (identify) the Home, Inquiries, Block Sizing, and Machine Database pages in the EZ Block Sizer software on the first attempt.

Instructions to Learner:

Please read the EZ Block Sizer user guide before practicing any of the following assessment activities.

EZ Block Sizer Application User Guide



Note: This is a sample of an Absorb activity.

Due to proprietary information, I only included a couple pages of the EZ Block Sizer user guide.

Introduction

The EZ Block Sizer application accurately calculates the evacuation area and size of a device used to evacuate a die casting cavity used in the high pressure die casting process. The application utilizes a series of casting and machine attributes to perform calculations providing a result that is used in selecting the device size.

Porosity (air entrapment) is inherent in the high pressure die casting process and is detrimental to the required quality levels acceptable in the production of die castings. The die casting process involves the injection of molten metal under high pressure into a die casting cavity. During the injection phase of the process, air is mixed with the molten metal and creates porosity. Thus a means of reducing the porosity in the die casting is necessary. This is accomplished by providing a means of reducing the porosity (air entrapment) during the injection of the metal. An evacuation device is used to accomplish this.

Follow these steps to access and use the EZ Block Sizer software application.

Log In

To log in to EZ Block Sizer software application:

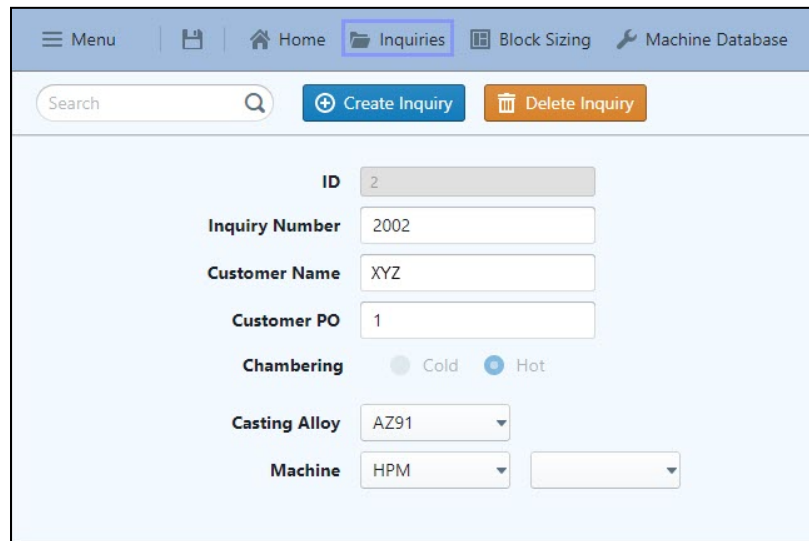
1. On your computer, open a web browser.
2. Enter the EZ Block Sizer URL [URL address here] into the browser address field.
3. Press **Enter** on your keyboard. The EZ Block Sizer Log In page displays allowing you to enter your log in credentials.
4. On the EZ Block Sizer Log In page, select **Log In**. The Security Verification Log In page displays allowing you to enter your user name and password.
5. Enter your User Name and Password. (These credentials were supplied to you by the EZ Block Sizer software application administrator.)
6. Press **Enter** on your keyboard. The EZ Block Sizer Home page displays allowing you to navigate to the various pages of the EZ Block Sizer software application.

Note: To log out of the EZ Block Sizer software application, select **Log Out**.

(For proprietary reasons, the security log in page is not available for this document.)

Inquiries Page

Search for Inquiries



The screenshot displays the 'Inquiries' page of the EZ Block Sizer software. The top navigation bar includes 'Menu', 'Home', 'Inquiries' (highlighted), 'Block Sizing', and 'Machine Database'. Below the navigation bar is a search bar with a magnifying glass icon, a blue 'Create Inquiry' button, and an orange 'Delete Inquiry' button. The main content area contains the following fields:

- ID**: 2
- Inquiry Number**: 2002
- Customer Name**: XYZ
- Customer PO**: 1
- Chambering**: Cold Hot
- Casting Alloy**: AZ91
- Machine**: HPM

To search for an existing inquiry:

1. Log in to the EZ Block Sizer software application. (See Log In steps.)
2. On the menu bar, select **Inquiries**. The Inquiries page displays allowing you to choose an inquiry option. Options include: Search, Create Inquiry and Delete Inquiry.
3. In the Search field (located in the upper left-hand corner next to the magnifying glass icon), enter the existing Inquiry Number and/or Customer Name and press **Enter** on your keyboard.
4. If more than one inquiry exists for the search criteria entered, the Select an inquiry... list pop-up displays allowing you to select the inquiry you want to view and edit. Select the blue circle icon located to the left of the Inquiry Number you want to view. The information detail for the inquiry is then displayed on the Inquiry page.
5. If applicable, update the inquiry information and then select **Save**.
6. To view and/or edit details of the block sizing, select **Block Sizing**. The Block Sizing details page displays allowing you to make any necessary edits.

Enter New Customer Inquiry Information:

Using the customer information form, enter the following information on the Inquiries page (pop-up):

1. Log in to the EZ Block Sizer software application. (See Log In steps.)
2. On the menu bar, select **Inquiries**. The Inquiries page displays allowing you to choose an inquiry option. Options include: Search, Create Inquiry and Delete Inquiry.
3. Select **Create New Inquiry**. The Create Inquiry pop-up displays allowing you to enter information for the new inquiry.
4. Enter (or select where applicable) the following information:
 - a. **Inquiry Number**: Enter the five digit number used to identify the inquiry.
 - b. **Customer Name**: Enter the customer name.
 - c. **Customer PO**: Enter customer purchase number (optional).
 - d. **Chambering**: Select Cold or Hot chamber.
Note: The input selected here will determine the input fields and values generated on the Block Sizing page associated with this inquiry.
 - e. **Casting Alloy**: Select the alloy to be cast (these are pre-set values).
 - i. Aluminum – 380, 390, ZA-12, ZA-27 cold chamber only
 - ii. Zinc – Zamak 3, Zamak 5, ZA8 hot chamber only
 - iii. Magnesium – AZ91, AM50 cold and hot chamber
 - f. **Machine**: Select the machine from list by Manufacturer Name and Model ID.
Note: To reference information associated with die cast machines, select **Machines Database** on the menu bar.
5. Select **Save**.

Important: A Block Sizing page is generated (including any ABC Company pre-set parameter values) for this inquiry based on the values you entered and selected on this Inquiry page. See the appropriate Block Sizing page steps for either Cold or Hot chamber to continue entering information for this customer inquiry and block sizing.

6. To continue entering information for the new inquiry, select **Block Sizing** on the menu bar. The Block Sizing page displays allowing you to enter additional information. (See Block Sizing page steps.)

Note: Block Sizing pages are not included in this sample.

Drag and Drop (Do Activity)

Terminal Objective: The mechanical engineer will navigate to the various pages in the EZ Block Sizer software.

Enabling Objective: Using a computer, the mechanical engineer will locate (identify) the Home, Inquiries, Block Sizing, and Machine Database pages in the EZ Block Sizer software on the first attempt.

Displayed below is the EZ Block Sizer Welcome page.

Locate and drag the brief functionality description on the left to the corresponding page on the menu bar picture on the right. When finished click Submit.

View and enter new inquiries

View machine information

View and enter block sizing

View the welcome page

☰ Menu | 🏠 Home | 📁 Inquiries | 📄 Block Sizing | 🔧 Machine Database

Welcome to EZ Block Sizer

SubmitTry Again

Feedback will display here

Note: The Try Again button will be available (if necessary) after you submit your answers. You are allowed to Try Again multiple times.

Feedback:

Correct: You've matched the corresponding functionality description to the correct page on the menu bar.

Try Again: There are some incorrect matches. Review your answers above and then click **Try Again** to give it another try.

Multiple Pick/Choice (Do Activity)

Terminal Objective: The mechanical engineer will identify the pertinent information entered on the customer form to create and save a new Cold or Hot Chamber inquiry and block sizing in the EZ Block Sizer software.

Enabling Objective: Given a customer information form, the mechanical engineer will identify and enter the customer information into the appropriate corresponding fields in the EZ Block Sizer software Inquiry page and save the inquiry on the first attempt.

The Inquiry page allows you to view and create new inquiries in the EZ Block Sizer software application.

Which fields displayed on the EZ Block Sizer Create New Inquiry page (dialog box) are required fields? (Pick all that apply and click Submit.)

Today's Date	Inquiry Number
Delivery Date	Email
Machine (Manufacturer & Model)	Casting Alloy
Chambering (Cold or Hot)	Customer Name
Part Number	Phone Number

Feedback will display here

Note: The Try Again button will be available (if necessary) after you submit your answers. You are allowed to Try Again multiple times.

Feedback:

Correct: These are the five (actually six) required fields on the Inquiry page: Inquiry Number, Customer Name, Chambering (Cold or Hot), Casting Alloy, Machine (Manufacture and Model). The Machine Manufacture and Model drop-downs count as two separate selections because you need to select both the Machine Manufacture and a Model. The Today's Date, Part Number, Delivery Date, Email, Phone Number fields are not displayed or required fields on the Inquiry page. These fields are on the Customer Information form but they are not displayed or required fields on the Inquiry page.

Try Again: There are some incorrect answers. Review your answers above and then click **Try Again** to give it another try.

True or False (Do Activity)

Terminal Objective: The mechanical engineer will analyze (compare) the vent and vacuum block size input/output information for Cold or Hot Chamber inquiries and block sizing.

Enabling Objective: The mechanical engineer will conclude if the variances between the ABC Company pre-set (generated and/or calculated) parameters and the customer information are correct and within the 15% variance allowed by ABC Company.

The Block Sizing page in the EZ Block Sizer software application allows you to enter and update block sizing information.

The block sizing information (data and calculations) in the screenshot example below is correct and ready to be sent to a client? (True or False)

The screenshot displays the EZ Block Sizer software interface. The top navigation bar includes 'Menu', 'Home', 'Inquiries', 'Block Sizing', and 'Machine Database'. The main content is divided into three sections:

- Casting Information:** A table comparing ABC Company and Customer data for various parameters. The 'Cavity Fill Time' field shows a discrepancy: ABC Company is 31.373 ms and Customer is 1.234 ms.
- Cold Chamber Results:** A table showing calculated results for ABC Company and Customer, including Shot Volume, Sleeve Volume, Total Volume, Max P, Max Q, Flow Rate Q, Gate Velocity, and Shot Weight*.
- Block Sizing Results:** A table showing block sizing results for ABC Company and Customer, including Vacuum and Vent for Areas, 1 Block, 2 Blocks, and 4 Blocks.

At the bottom of the interface, there are two buttons: 'True' and 'False'. Below the buttons, a feedback message reads: 'Feedback will display here'.

Feedback:

False: Correct. The information in the Cavity Fill Time field does not fall within the 15% variance allowed by ABC Company. A follow-up discussion with the prospective client is needed to confirm the correct information was entered on their customer information form.

True: Incorrect. The information is not correct because the data in the Cavity Fill Time field does not fall within the 15% variance allowed by ABC Company. This incorrect data also miscalculates the cold chamber and block sizing results.

Job Aid (Connect Activity)

Terminal Objective: The mechanical engineer will identify the pertinent information entered on the customer form to create and save a new Cold or Hot Chamber inquiry and block sizing in the EZ Block Sizer software.

Enabling Objectives:

- Given a customer information form, the mechanical engineer will identify and enter the customer information into the appropriate corresponding fields in the EZ Block Sizer software Inquiry page and save the inquiry on the first attempt.
- Given a customer information form, the mechanical engineer will identify and enter the customer information into the appropriate corresponding fields (Cold or Hot Chamber) in the EZ Block Sizer software Block Sizing page on the first attempt.

Note: See Job Aid on following page.

Pertinent Information from the Customer Information Form Entered into the EZ Block Sizer Application

The “**X**” indicates if the information from the Customer Information Form
is entered into the EZ Block Sizer Application

Customer Information Form	Inquiry Page	Hot Chamber Block Sizing Page	Cold Chamber Block Sizing Page
Date (auto-generated)			
Customer	X		
E-mail			
Phone			
Part Identification			
System requested (Vacuum or Venting)			
Material (Aluminum, Magnesium, Zinc) Note alloy used	X		
Chamber: (Hot or Cold)	X		
Machine Tonnage		X	X
Manufacture (and model)	X, X		
Machine shot cylinder dia.		X	X
Hydraulic system pressure (psi.)		X	X
Fast shot accumulator pressure (psi.)		X	X
Cold Chamber (Dia. And Length)			X
Hot Chamber (Plunger dia. and Plunger stroke)		X	
Goose neck length		X	
Nozzle dia.		X	
Nozzle length			
Dry shot speed (This is critical to design)		X	X
No. of cavities		X	X
Shot weight (w/o biscuit)		X	X
Through gate weight (include part weights and overflows vacuum)		X	X
Part weight 's (w/o)		X	X
Slow shot speed (IPS. If known)			
Fast shot speed (IPS. If known)		X	X
Cavity fill time (ms. If known)		X	X
Total gate area (in ² .)		X	X
Gate thickness (in.)			