

Pre-Interview Exercise

What is the objective?

This exercise is an opportunity to showcase your engineering talent. Immediately evaluating your work is the best way for Rebound to assess your skills without being biased by traditional resume content. It lets us jump directly to: can you solve problems that demonstrate you're the technical fit for our team.

This exercise will assess your ability to tackle open-ended design challenges like those you might encounter at Rebound. It will provide insight into your problem-solving approach as well as your enthusiasm for the position. Please note that the problem is fictitious and the results will only be used for assessment purposes.

What should you send?

The deliverable is a PDF document clearly describing your solution. Drawings, calculations, and model results are encouraged. We encourage you not to take more than 1-2 hours to complete. DO NOT send a resume, cover letter or any summary of your past professional/educational experience.

Where should I send it?

Please email your PDF to careers@rebound-tech.com

What resources should you use?

Use any resource you wish. This is not a test of your ability to solve problems in a vacuum, but instead to test your real world problem solving skills. Feel free to scour the Internet, the literature, etc. as you don't need to invent the solution from scratch. Pull from process equipment you know and/or learn about in your research. Tell us what equipment you would incorporate based on what you find.

How will your work be assessed?

We are looking for the following three candidate skills (in order of importance):

1. Engineering Skill (Is your solution technically viable?)
2. Communication Skill (Is your presentation easy to follow and well composed?)
3. Enthusiasm (Did you put sufficient work into your solution?)

Problem Statement:

You are an engineer working at an ice-cream factory. You are designing a new type of ice-cream making machine that produces a product so delicious it can be sold at nearly any price.

Unfortunately, to form the ice-cream, the sugar and cream must be constantly mixed under the extreme pressure of 20MPa while being cooled to -20°C . The plant owners want a machine that can produce 2000 gallons of ice cream per day.

Please design a system that can be sent to the facility operations team for implementation. They'll need volumetric footprint, power consumption, and a brief description of how the mixing and cooling will be accomplished at such a high pressure.