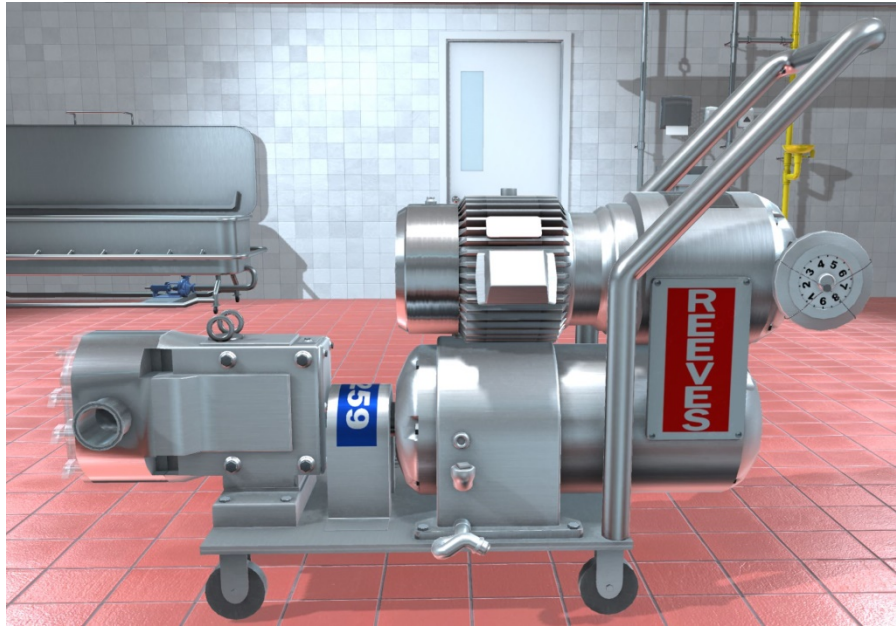


TIMING PUMP

MODEL DESCRIPTION DOCUMENT (MDD)

Version – v1.0



MAY 15, 2017

PREPARED FOR:
DS FEDERAL FDA
ATTN: CURTIS MILLER



PREPARED BY:
DIGNITAS TECHNOLOGIES, LLC
3504 LAKE LYNDA DR., SUITE 170
ORLANDO, FL 32817

DOCUMENT REVISION HISTORY

Version	Description	Date
1.0	Final Release	05/15/17

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY	i
TABLE OF FIGURES.....	iii
TABLE OF TABLES.....	iii
1 MODEL OVERVIEW	1
1.1 DESCRIPTION	1
1.2 REQUIREMENTS	1
1.3 REFERENCES.....	1
1.4 MODEL VERSION and History	2
1.5 MODEL SUMMARY	2
2 UNITY PACKAGE.....	4
2.1 IMPORTING THE UNITY PACKAGE.....	4
3 MODEL ATTRIBUTES	5
3.1 POLYGON ALLOCATION	5
3.2 TEXTURE MAPS	5
3.3 SENSOR VIEWS.....	5
3.4 MODEL STATES.....	5
3.5 SKELETAL STRUCTURE	5
4 ANIMATIONS	6
5 VERIFICATION APPROACH.....	6
5.1 RUNTIME SYSTEMS	6
6 LIMITATIONS	6
7 CONTACT INFORMATION	6

TABLE OF FIGURES

Figure 1 Timing Pump Model (Unity View)..... 1

Figure 2 Timing Pump Origin on Cartesian X, Y, Z Coordinate System (Maya Software Render) 2

Figure 3 Timing Pump – Front View (Unity)..... 3

Figure 4 Timing Pump - Top View (Unity) 3

Figure 5 Unity Import Package..... 4

TABLE OF TABLES

Table 1 Model Revision History..... 2

Table 2 Model Summary..... 2

Table 3 Polygon Allocation..... 5

1 MODEL OVERVIEW

1.1 DESCRIPTION

- Sanitary, positive displacement pump which provides a constant measured rate of flow to the continuous pasteurization system.

1.2 REQUIREMENTS

Requirements for each model are gathered based off of the needs of the customer. Reference images are then found and used to accurately build 3D models. The required components for this model include:

- Impellers
- Stainless Steel Exterior
- FDA Seal

1.3 REFERENCES

- 3D_Model_Development_Process.docx
 - The 3D model development process details Dignitas Technologies' procedure for building 3D models.

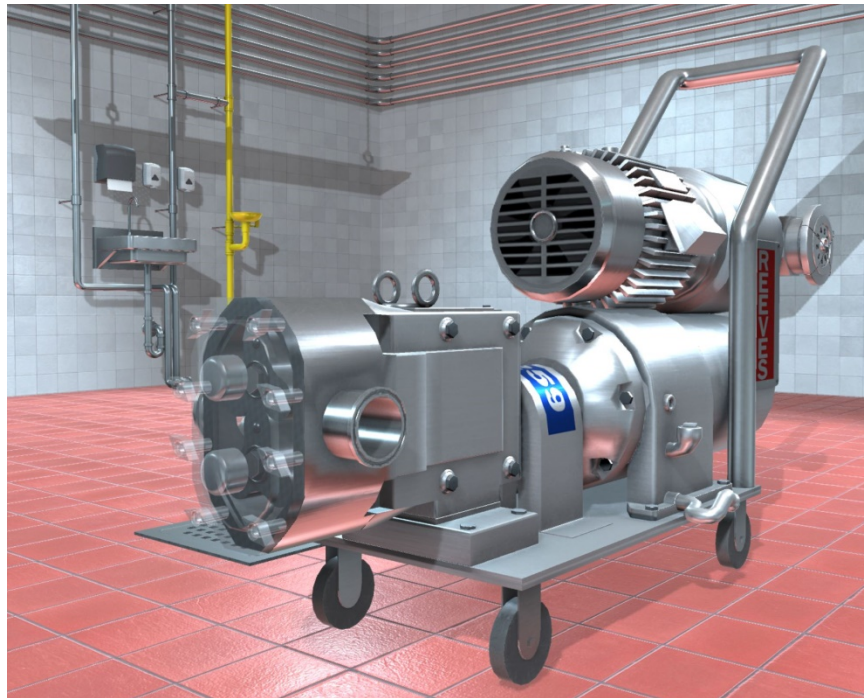


Figure 1 Timing Pump Model (Unity View)

1.4 MODEL VERSION AND HISTORY

Information about the model version can be found in the “Model_Version.txt” file located in the model’s directory (same directory the model’s .fbx file is located).

Table 1 Model Revision History

Version	Description	Date
1.0	Final release of the Timing_Pump.fbx	05/15/17

1.5 MODEL SUMMARY

Table 2 Model Summary

Model Name	Timing_Pump.fbx
Unity Package Name	FDA_Timing_Pump.unitypackage
Model Units	Meters
Coordinate System	Cartesian X, Y, Z (see Figure 2 below)
Model Origin	Origin is located at center mass. (0, 0, 0) (See figure 2 below)
Model Orientation Runtime	Forward: Positive Y Up: Positive Z
Model Orientation Maya	Forward: Positive Z Up: Positive Y

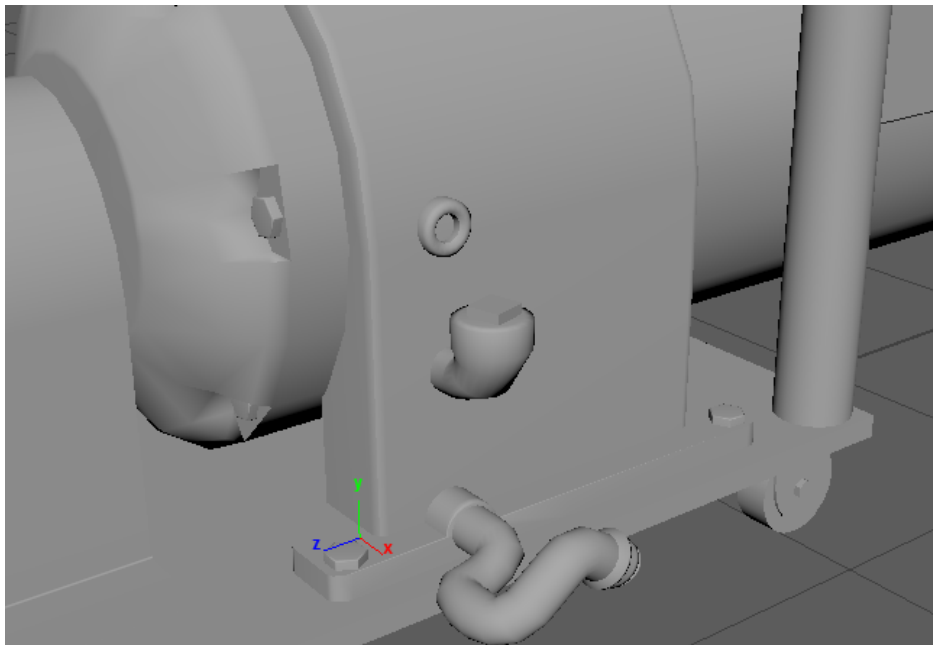


Figure 2 Timing Pump Origin on Cartesian X, Y, Z Coordinate System (Maya Software Render)

This model was imported into Unity 5.5 to verify the model (see Figure 3 below).

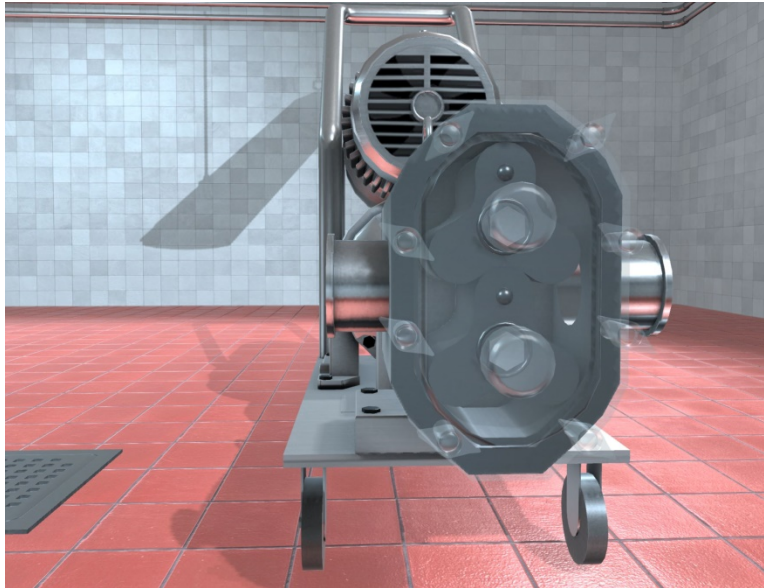


Figure 3 Timing Pump – Front View (Unity)

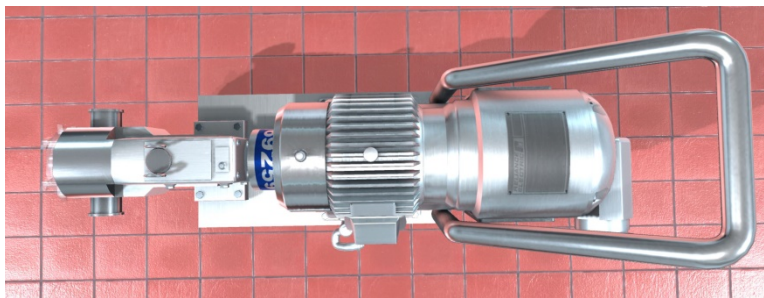


Figure 4 Timing Pump - Top View (Unity)

2 UNITY PACKAGE

2.1 IMPORTING THE UNITY PACKAGE

1. Download the “FDA_Timing_Pump.unitypackage” file from Google Drive
2. Open the “DSVT Milk Factory” Unity Project in Unity 5
3. In the top menu bar go to “Assets → Import Package → Custom Package...”
4. A window should pop up showing you the contents of the Unity Package being imported
 - a. This Unity Package should look like this:

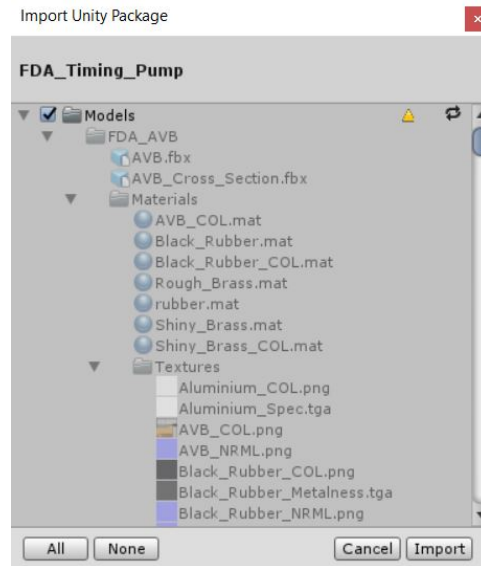


Figure 5 Unity Import Package

5. Press “Import” and the model and materials will be placed into the Assets section.
6. Make sure that when dragging the model into the scene that you select the “Prefab_***.prefab” instead of the FBX as the prefab has the materials stored on it correctly.

3 MODEL ATTRIBUTES

3.1 POLYGON ALLOCATION

Polygon allocation is the number of triangles and vertices for a given state and Level of Detail (LODs) in the model. The method for calculating the number of polygons is to gather each model state then count the polygons present in each representation. Animations are not included in the polygon allocation. The Timing Pump model has a single LOD which is labeled LOD0.

Table 3 Polygon Allocation

Model	# of Triangles	# of Vertices
Timing Pump	25706	13594

3.2 TEXTURE MAPS

For most models in this scene we used tileable textures, most of which comprise of diffuse, normal, metalness, and specular maps. For the materials that use specularly, the spec maps are found in the Alpha Channel of the Metalness maps.

1. Texture Map Formats – JPG, PNG, TGA
2. Texture Map Types – Diffuse, Normal, Metalness, Specularity
3. Average Texture Map Sizes – 2048 x 2048

3.3 SENSOR VIEWS

N/A

3.4 MODEL STATES

N/A

3.5 SKELETAL STRUCTURE

N/A

4 ANIMATIONS

N/A

5 VERIFICATION APPROACH

5.1 RUNTIME SYSTEMS

The 3D model was tested using the following tools:

- Unity 5.5

6 LIMITATIONS

N/A

7 CONTACT INFORMATION

Project Manager: Greg Dukstein

Phone: (407) 601-7847

Email: gdukstein@dignitastech.com