PACCMAN Tutorial

This document is a tutorial to explain how to use the PACCMAN program. It is expected that users will have a package manager such as Anaconda or another program with Numpy, Scipy, Matplotlib, etc. installed.

PACCMAN is set by default to import data from the ”basedata.py” file. A selection of this file is seen in the picture below. This file can be changed, or line 10 in the ”paccman.py” file can be changed to import different inputs.

```
TC = 15
#coolant temperature celsius
PP = 980
#density of plastic part kg/m^3
CP = 1300
#specific heat capacity of plastic part J/KG*K
LP = 0.001
#half the plastic part thickness m
W = 0.010
#cooling line pitch distance m
D = 0.005
#cooling line diameter m
LM = 0.004
#distance from cooling line to mold wall
TMelt = 180
#Part melted temperature
TEject = 64.9
#Part ejection temperature
TCycle = 10
#Cycle time seconds
TMO = 13
#Initial mold temperature
CVV = 0.227
#coolant velocity liters/sec
DV = 1.002 * 10**-3
#coolant dynamic viscosity
```

After the input data is set, the program is ready to run. Using Anaconda (or something similar), navigate to the directory the program is saved in and run the following command:

```
python paccman.py
```

If the variable inputs are for a mold with straight cooling pipes, the program will ask the following question:

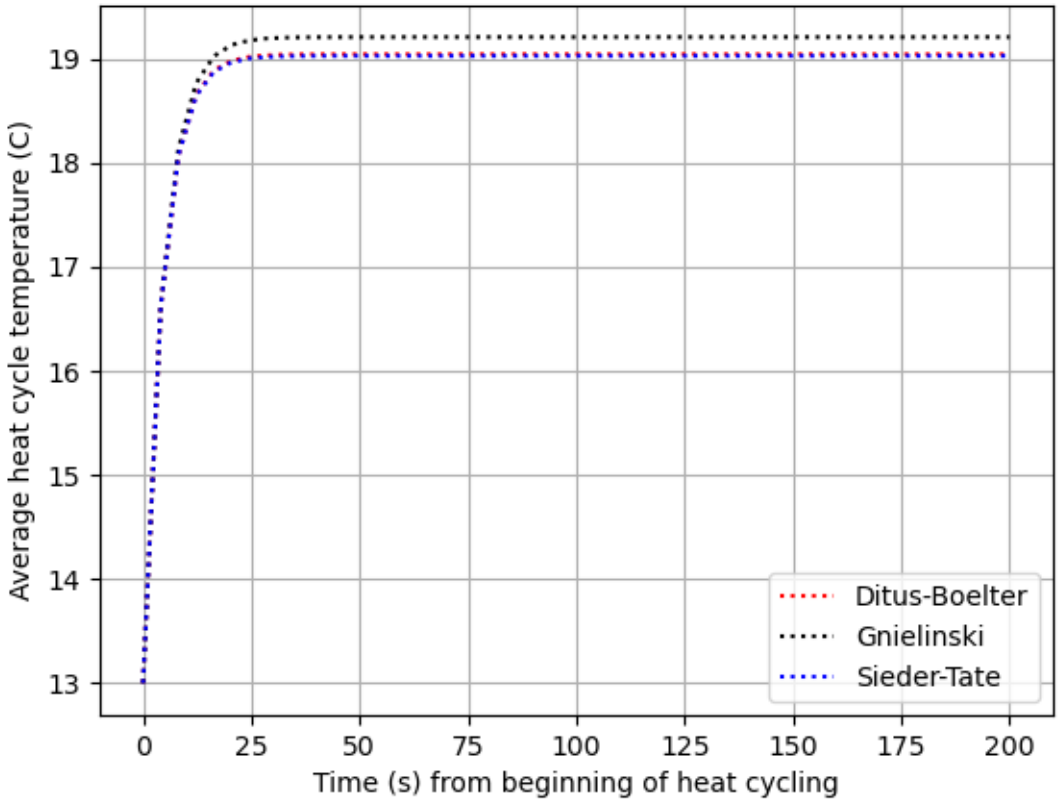
```
Would you like to select a single heat transfer coefficient or view
 the results from multiple? Enter "N" to choose or "H" to compare:
```

Choosing ”N” will cause the program to prompt the user to select a heat transfer coefficient correlation. The options are ”D” for Ditus-Boelter, ”G” for Gnielinski, and ”S” for Sieder-Tate. Selecting ”H” will compare all three. A mold with helical cooling geometry only has one option, so this menu will not appear.

Once the heat transfer coefficient correlation is set, the user has the option to save a picture of the average temperature over time graph:

```
Would you like to save an image of the graphs? Y for yes, N for no:
```

The following image is an example of option ”H”, to compare the heat transfer coefficient correlations:



The following image is either an example of option ”N”, to only show the selected heat transfer coefficient correlation or an example of a mold with a helical cooling pipe: