

# M/K Systems Laboratory Pulp Digesters – ASME/CE/CRN Compliant

## High Temperature Liquor Circulation Systems

Reliable cooks • Black Liquor Sampling • H-factor Cooking • Easy to use • Patented

### Single Vessel System



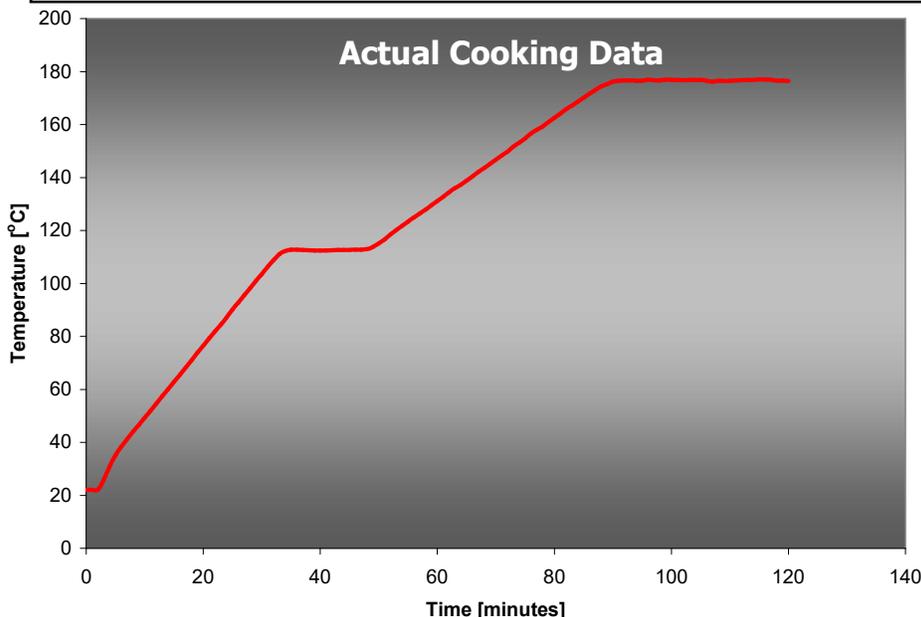
### Dual Vessel System



Technologies from M/K Systems  
**Patents 7,811,416 and 8,172,984**  
 are included in **all systems**

### About the M/K Laboratory Digester

This laboratory cooking system gives the user a simple, precise method to cook all types of wood chips, biomass materials, straw materials, as well as fine granular substrates. Place your substrate in the chip basket, load into the cooking vessel, add liquor, and you are ready to cook. Each vessel cooks independently, allowing you to run different cooking profiles at the same time. Use our software to easily write your cooking profile. Control by temperature/time profiles, H-factor, or even system pressure. Easily extract black liquor during your cook. Steam inlets for external boilers are included. The temperature control is +/- 0.1C of the set point. M/K Digesters are ideal for Kraft pulp cooks.



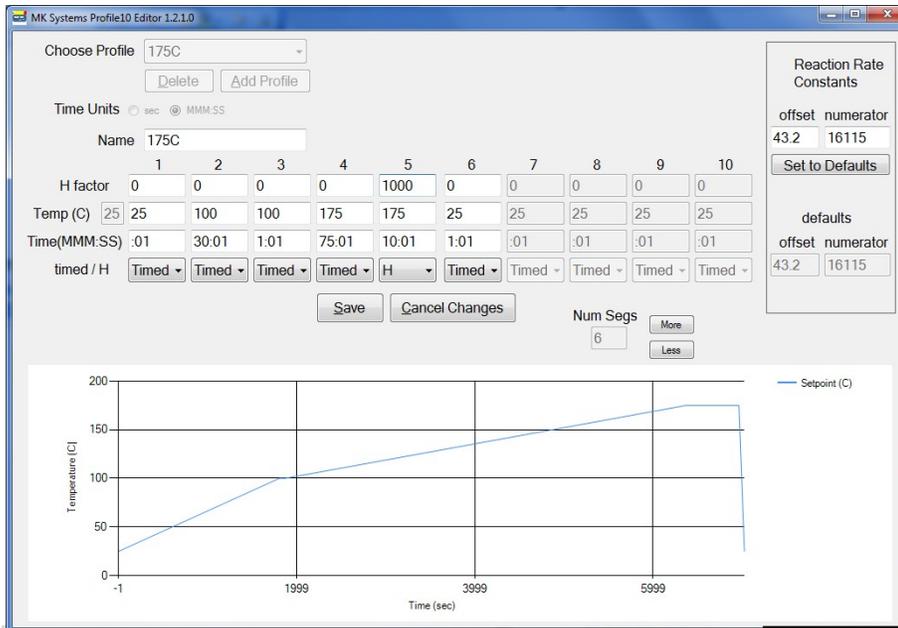
### *Details of the M/K Digester*

- Uniform cooking
- Various vessel sizes available
- Run cooks independently
- Rapidly cool the system
- Liquor and Vapor Temperature are measured
- Anti-turbulence design
- Sample liquor while cooking
- Windows-based

### **System Requirements**

1. Power: 220 Volts, 50 amps
2. Floor drain is recommended
3. 1.5 meter x 1.5 meter space

## M/K Digesters are accurate, safe, and easy to use.



Running the M/K Digester is easy. The software displays a clear graph of the programmed cooking profile before starting, avoiding errors. Control each cooking segment by temperature, heating rate, H-Factor, time, or pressure. Each step is monitored and is recorded in excel with all true values of liquor temperature, vapor temperature, system pressure, as well as all the heater temperatures against time.



The M/K Digester uses several types of heaters and sensors to accurately control the cooking process. Both liquor and vapor temperatures are recorded, as well as all heater temperatures and system pressure. Each cooking vessel contains our unique chip basket which is designed to work with softwoods, hardwoods, straw-based materials, and even granular materials. Our easy to use sampling condenser is ideal for extracting black liquor (while cooking) from your cellulose products.

### Worldwide M/K Digester Industry References/Patents/Publications

1. (United States), "**Composition for the production of Improved Pulp**", Patent # US 6,890,404.
2. (United States), "**Phenols as Additives in Kraft Pulping**", Patent Application Publication US 2019/0112757.
3. (United States), "**Controlled Flocculation of Lignocellulosic Hydrolyzates**", Publication US 2016/0083808 A1.
4. (Canada), "**Method for obtaining cellulose from biomass comprising lignocellulose**", Canadian # 2,758,038.
5. (Australia), "**Liquid co-extraction process for production of sucrose, xylo-oligosaccharides and xylose from feedstock**", Australian Pat. App. AU 2015252695 B2, World Wide Application # 2015/164948 A1.
6. (United States), "**Tobacco-derived cellulose material and products formed thereof**", Patent # US 9,950,858.
7. (United States), "**Method to separate lignin-rich solid phase from acidic biomass suspension at an acidic pH**", Patent # US 9,751,781.
8. (International Application), "**Composition for inhibiting calcium salt scale formation**", Patent Application AU 2,010,224,861.
9. (Portugal), "**Method and aqueous composition for the production of improved pulp**", Patent # PT 1,392,914.
10. (United States), Publication: "**Comparison of Oxidative Alkaline Extraction Reaction's Impact on Pulp Properties and the Environment**". T.M. Runge and A.R. Ragauskas, Int'l Pulp Bleaching Conference. Helsinki, Finland.