Blentech corporation
P.O. Box 3109 Rohnert Park, CA 94927
707-523-5949 FAX 707-523-5939

VERSATHERM

The Versatile Blending Cooker

General Description

The **VersaTherm Blending Cooker** evolved from the traditional horizontal twin shaft meat blender design, one of the most efficient blending techniques known. Blentech engineers enhanced this basic design with a unique 200° wrap-around jacket, a patented reversing leaf spring scraper system in addition to many other creative features and innovations. The result is a highly versatile cooker for difficult-to-cook, medium to high viscosity products.

Mixing and Scraping Ability

The twin horizontal shaft ribbon agitators in the VersaTherm stir product in the horizontal plane as product is simultaneously lifted and folded from bottom to top, blending in the vertical plane. This dual mixing action is the key to maintaining particulate suspension and evenly blending highly viscous products - making the VersaTherm an exceptionally efficient blender. Keeping the product homogeneously mixed throughout the heating cycle results in a uniformly cooked batch every time.

Mounted to the agitator ribbons is our unique reversible scraper system (PATENTED). These scrapers are held firmly against the heat exchange surfaces by a leaf spring assembly. If the product begins to build-up on the heat exchange surfaces, the scrapers are designed to flex and dig into the build-up by making a point contact with the heating surface. The more stubborn the build-up, the more the scrapers dig in to scrape the build-up free.

The combination of our unique scraper system and the folding/blending action of our ribbon agitators results in a product that is cooked evenly throughout.

Inefficiency Of Hemispherical Kettles

Conventional hemispherical, jacketed kettles commonly used today are relatively inefficient in most applications - particularly viscous products. Such kettles simply cannot perform effectively when cooking very viscous products and foods with particulates that sink to the bottom or float to the top. The addition of propeller mixers does not significantly increase their efficiency. The reason: a vertical shaft agitator is not effective in blending viscous products. Product simply goes around and around in a single plane. A kettle is a very poor blender regardless of how many agitators it has. The solution: the product must be mixed in two planes - vertically as well as horizontally.

Consider mixing a cake batter in a bowl: You do not just stir the product in a circle; you also lift and fold the product into itself. Blentech horizontal blender-cookers duplicate this blending action. Viscous products tend to cook unevenly in kettles because heat transfer is dependent on slow moving conduction heating. The result is overcooked product near the heating surface with undercooked product in the center. Even the addition of rotating agitators does not completely eliminate this problem.

Better Heat Exchange Coefficient

The VersaTherm has a very high heat exchange coefficient as well as a high heating surface to product ratio, thus it is very effective at driving the steam energy into the product. The unique scraper system and efficient ribbon agitators provide a scraped surface, forced convection action. The result is a heat exchange coefficient of about 315 on water as compared with heating coefficients of about one third less for kettles. In addition, Blentech engineers have designed the jackets to cover three quarters of the VersaTherm wall. While the heating surface to product volume ratio does vary with different sized units, a VersaTherm of any size will have a higher surface to volume ratio and heat exchange coefficient than a like sized kettle. Correspondingly, field tests have confirmed that cook times are substantially less than kettles with all products.

HEATING PERFORMANCE COMPARISON

Hemispherical Jacketed Kettles
vs.
VersaTherm Horizontal Blending Cooker

Vessel Size	Heat Transfer Area (sq ft)		Additional
(gal)	Kettle	VersaTherm	Heating Surface
100	14.1	17.3	+22.9%
125	19.2		
150	19.2	25.1	+30.9%
200	25.1	30.5	+21.7%
250	31.7		
300	31.7	42.2	+33.2%
400	39.2	50.3	+28.2%
500	39.2	57.9	+47.6%
600	39.2	64.7	+64.9%

Basic Features:

- For viscous products or products with heavy particulates, the VersaTherm comes equipped with an air-operated door system.
- The VersaTherm can be optionally equipped with two 3 or 4 inch diameter valved discharge ports.
- The variable frequency speed controller system allows for complete flexibility over exact agitator speed can be reached with PLC control.
- The machine is designed with automatically reversing agitators (PATENTED) to avoid particulate degradation that can otherwise occur in the ‘dead’ corners of twin shaft horizontal blenders.

Additional Options Available:
Below are some of the options that are available on the Blentech VersaTherm:

- Vacuum construction for vacuum cooling and/or cooking
- Modulating steam control
- Jacket steam pressure sensing
- Direct steam injection in addition to the standard 60 psi steam jacket
- Serpentine jacket for chilled water or glycol jacket chilling
- CO_2 snow horns for chilling
- Serpentine jacket for thermal oil heating
- 90 psi and 130 psi steam jacket for high temperature and sauté applications
- On board emulsification system
- 316 stainless construction
- CIP spray ball fittings and manifolding

Ideal Applications
The VersaTherm is very effective cooking the following products:

- Heavy viscous products which are hard to mix and tend to have pockets of stagnation leading to overcooking in some areas and undercooking in others. It is especially effective with heavy viscous products which tend to burn on the heat exchange surfaces such as pie fillings and Sloppy Joe sauces.

- Heavy particulates which sink to the bottom or float on top during cooking. Examples of such products are meat gravies or soups with vegetables.

- Formulated foods which are built up by adding ingredients during cooking. Such products may require sautéing or precooking some ingredients before other liquids are added. Examples are chili sauce, cheese sauce, custard, and spinach mornay sauce.

Just A Few of the Products Successfully Processed In The Versa-Therm

taco meat and sauce	cheese sauce	cumberland pie mix
mushroom filling	custard	flour gravy
savory mince	creamed onions	beef stew
sloppy joe sauce	scrambled eggs	steak sauces
sautéed spinach	cheese & ham filling	thick cheese sauce
steak & kidney filling	macaroni & cheese	chicken pie filling
chili with onions	bolognaise sauce	cheese mashed potatoes
country sausage gravy	BBQ sauces	spinach mornay sauce

Summary
The VersaTherm is a unique cooking system that offers definite advantages for the small processor and large processor alike on moderate to high viscosity applications. It comes equipped with many standard features making it one of the most flexible cooking blenders on the market. A variety of options are available which expand the functionality of the VersaTherm.