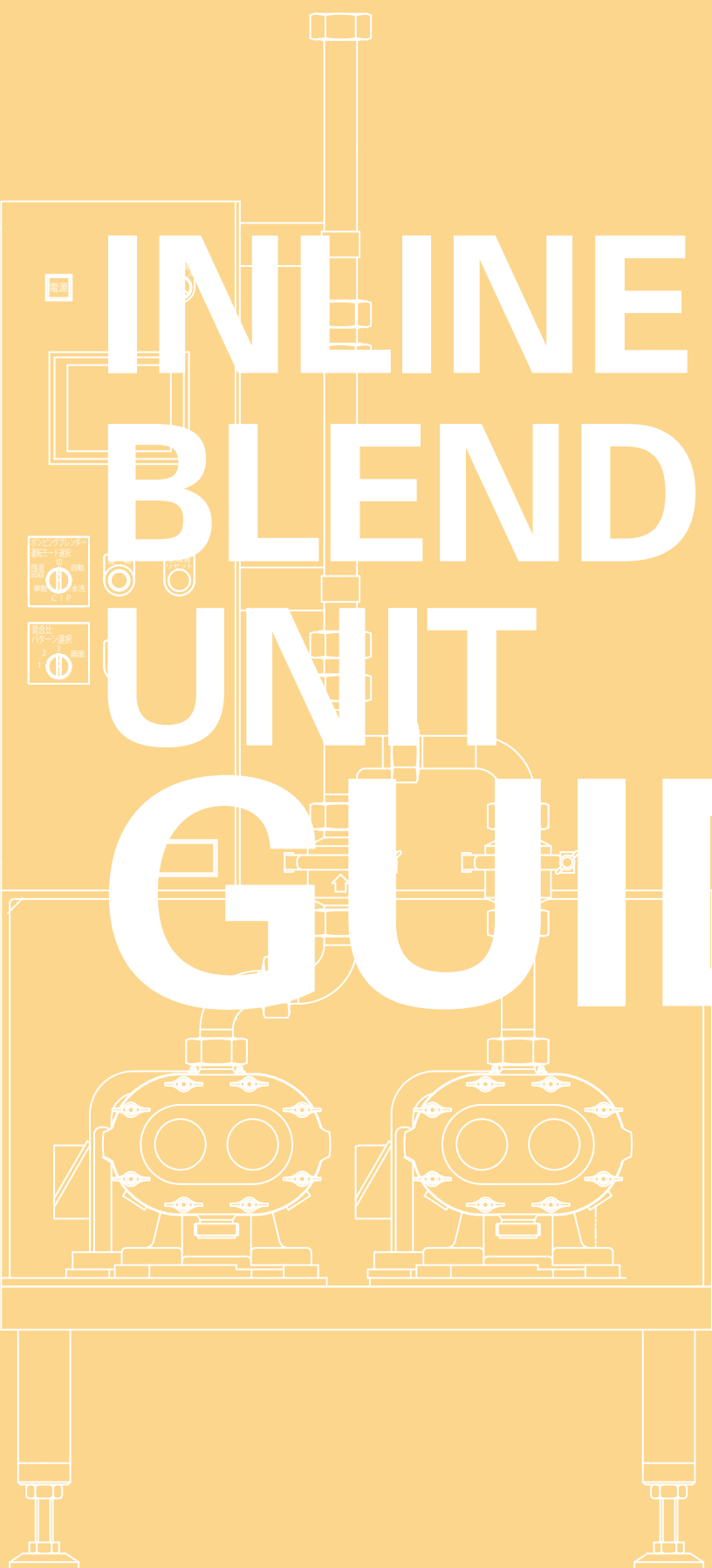


NAKAKIN

NAKAKIN INLINE  
BLENDING UNIT

# INLINE BLENDING UNIT GUIDE



Nakakin blending machine mixes two or more kinds of liquid *instantaneously* and precisely through its in-line and continuous process.

The machine, equipped with Nakakin pump to make the best use of the pump, has features as below.

- (1) The machine mixes low to high viscosity liquid.
- (2) The excellent quantitativity allows the machine to be used with all types of pre- and post-process equipment.
- (3) The machine mixes products including solids (such as fruit preparation).



### 1 Mixer

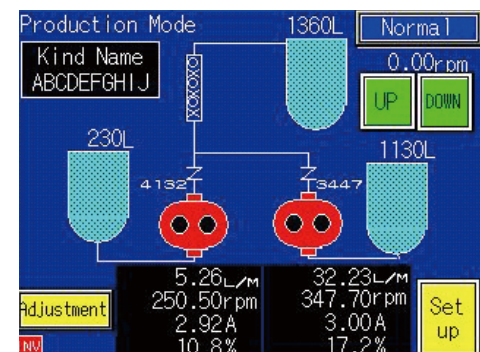
Mixes liquid in line.

### 2 Safety lamp

When this lamp lights up, disassembly of pump is prohibited.

### 3 Easy operation with touch panel

Mixture is controlled by digital setting. Among 99 kinds of mixture setting, any setting can be selected in one operation. Running condition, load current and rotation speed of motors, and other parameters are always monitored.



### 4 Practical operation modes

- Producing operation
- CIP (sterilization) operation
- Water washing operation
- Independent operation
- Residual liquid collecting operation



### Contribution to cost reduction

Utilizing Nakakin pump and a static mixer, at start-up, the machine accomplishes the target mixture ratio instantly, accelerating preparation of products. That eliminates a large scale preparation tank with a stirrer to simplify the facility, saving space.

### Sanitary structure enables CIP

The simple structure facilitates disassembly and cleaning in a short time. Embedded CIP circuit enables CIP by signals from a system such as an external CIP unit.

### Automatic preparation operation

Based on liquid level signals from a balance tank of the blender supply side, the machine is controlled by automatic operation that starts and stops it automatically.

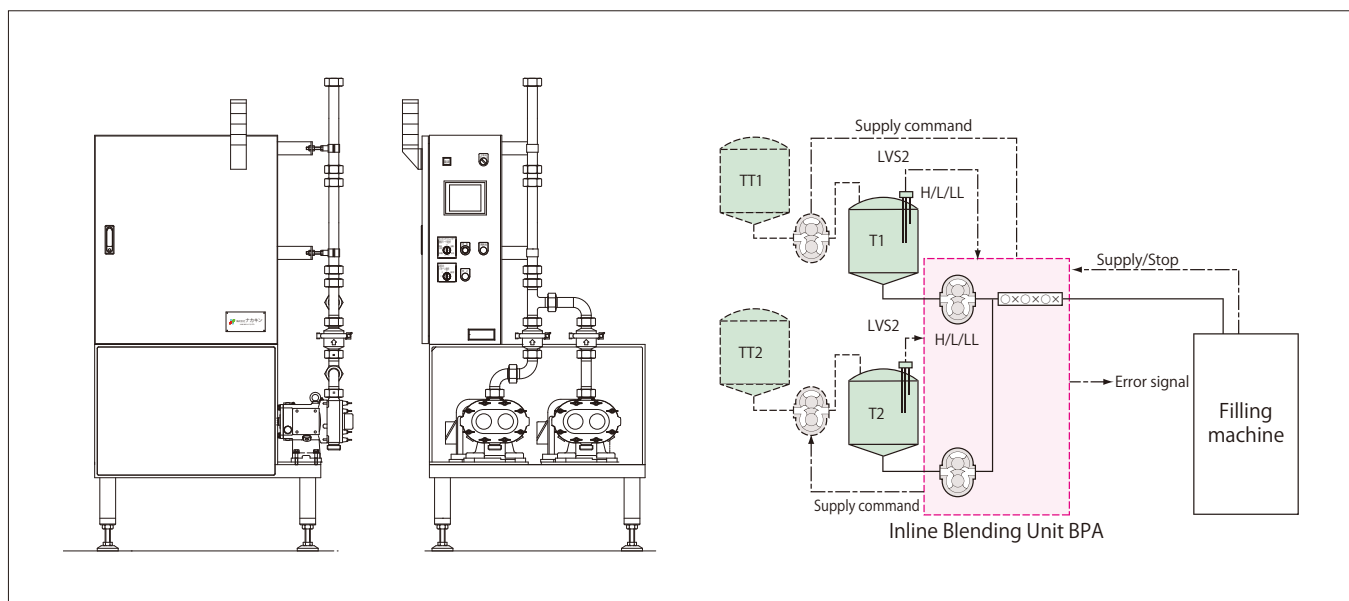
### High precision preparation

Installing a small tank at the supply side of the pump makes higher-precision preparation possible.

### Example of application

Yogurt, yogurt with flesh of fruit, juice, jelly, lactic beverage, dressing, chemical, and others.

## Dimension, Flow Diagram, Standard Specification



Model	BPA1616	BPA1625	BPA2525	BPA2540	BPA4040
Discharge	600 ~ 3600L/hr.	1200 ~ 6600L/hr.	1800 ~ 9600L/hr.	2100 ~ 11400L/hr.	2400 ~ 13200L/hr.
Ratio	1:1 ~ 1:3	1:3 ~ 1:8	1:1 ~ 1:3	1:2 ~ 1:6	1:1 ~ 1:4
Outer dimension	Height	1800mm	1800mm	1800mm	2100mm
	Width	950mm	950mm	950mm	950mm
	Depth	1050mm	1050mm	1050mm	1050mm
	Weight	500kg	500kg	580kg	650kg
Power	9kw	10kw	11kw	15kw	18kw

\* Note that the range of discharge amount depends on the mixture ratio. Even out of the above setting range, the machine is operable. In such a case, consult us.

\* In the case of liquid including solids, the above specification differs. In such a case, consult us.

Discharge pressure : 0.1MPa  
Viscosity : 1CP  
Reduction ratio : 1/5

Nakakin feedback controlled blending machine family includes BUFL type that controls the rotation of the pump based on the sugar concentration of the mixed product and FCBL type that controls the rotation of the pump based on specific gravity or flow rate of the mixed product. Combined specifications of these types are also available. In the case to mix liquid with extra-high viscosity and very low viscosity, a component such as a dynamic mixer may be used instead of the static mixer.

## 1. Model FCBL with flow rate feedback control

Nakakin Inline Blending Unit (FCBL) is designed to mix two or more kinds of liquid continuously. Applying our unique control techniques and using Nakakin pump and flow meters, the machine mixes liquid *instantaneously* and precisely to the required mixture.

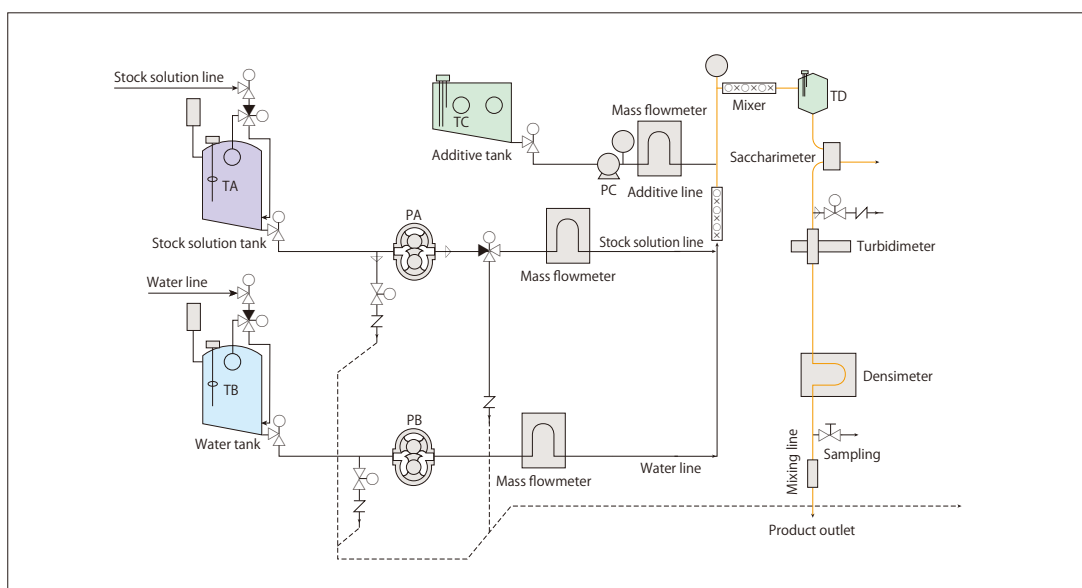
### ■ Microaddition mixing is possible (e.g. 1000:1)

At the time of mixing, a tiny amount of additives or the like is stably mixed to the main stream.

### ■ Precision mixture

Nakakin pump, which provides excellent quantitativity, is controlled its rotation based on the flow rate feedback signals for proper mixture. That maintains precision mixture condition. Accuracy: Brix  $\pm 0.1\%$

## Flow Diagram, Standard Specification



Model	FCBL1025	FCBL2555	FCBL40125
Discharge	1300 ~ 5000L/hr.	4500 ~ 13200L/hr.	6600 ~ 19200L/hr.
Tiny additive	2.5 ~ 3.5L/hr.	2.5 ~ 3.5L/hr.	2.5 ~ 3.5L/hr.
Ratio	1:1 ~ 1:4	1:2 ~ 1:5	1:2 ~ 1:5
Outer dimension	Width	2500mm	2600mm
	Depth	2300mm	2700mm
	Height	1800mm	2300mm
	Weight	2000kg	2300kg
Power	10kw	20kw	24kw
Air volume	150NL/min.	150NL/min.	200NL/min.
Air pressure	0.4 ~ 0.6MPa		

\* The specification above is an example. Do not hesitate to consult with us.

### Model FCBL



#### Inline Blending unit for five kinds of liquid

Up to 80 kinds of mixture patterns is registered and selected in one operation. Being linked to pre- and post-process devices, the machine performs preparation stably. According to the requirement, the machine is configured flexibly, for example, the number of kinds of liquid to be mixed.

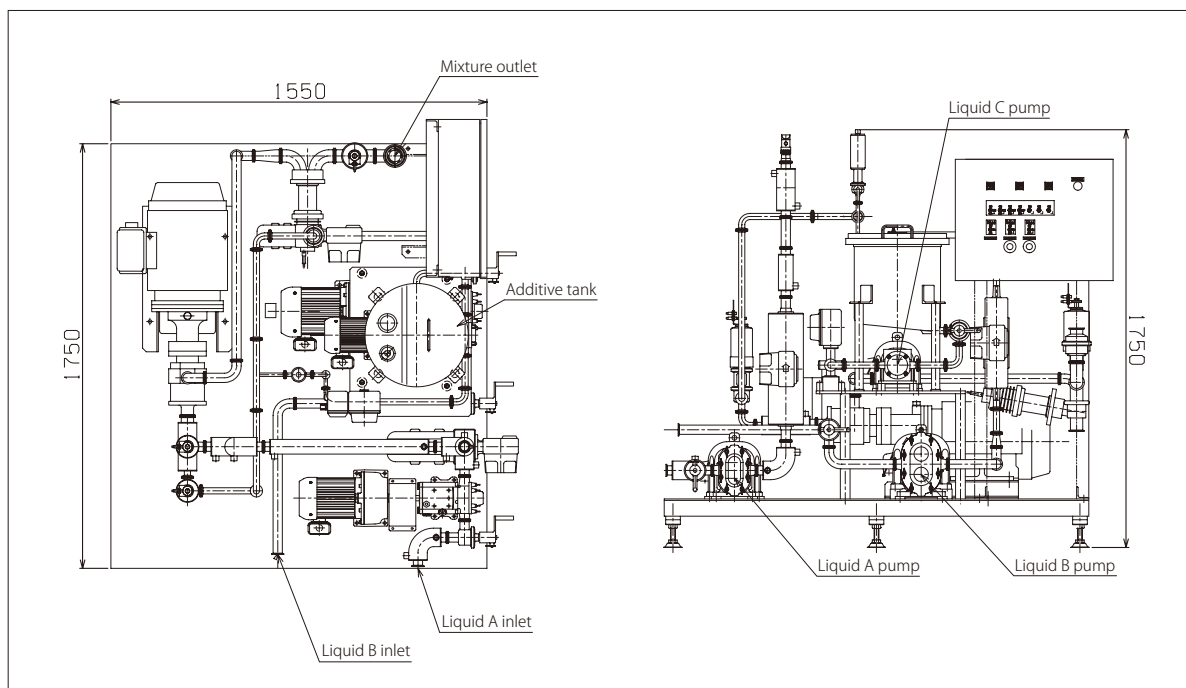
### Model FCBL3S



#### Inline Blending Unit for extra-high viscosity liquid

Model FCBL3S, which is equipped with a dynamic mixer, is designed to dilute and mix detergent (extra-high viscosity liquid). The machine performs continuous mixing operation precisely based on predetermined operational data for each type of liquid. Embedded unique Nakakin control system minimizes mixture loss at starting-up, and allows the machine to operate stable mixing.

## Reference Drawing





## 2. Model BUFL with sugar concentration feedback control

Nakakin automatic blending machine (BUFL) is a revolutionary automatic Inline Blending Unit that features automatic mixing using sugar concentration feedback control, automatic cleaning function, and remote control function.

### ■ Sugar concentration feedback function + Flow rate control function

Embedded saccharimeter, flowmeter, and computer processing enable full automatic preparation of products. Being selected a kind of liquid, the machine mixes liquid *instantaneously* to the required concentration without any losses, regardless of concentration of stock solution.

Accuracy of mixing: within Brix  $\pm 0.1\%$

(Sugar concentration is compensated at 20°C.)

Measurement range: Brix 0.000 to 20.000%

Measurement accuracy: Brix 0.005%

### Carbonated drinks are also supported

The structure that suppresses inclusion of air in the blender is capable of processing carbonated drinks.



## Blending machine for tea

### ■ The machine supports dilution of tea

The machine dilutes tea (such as oolong tea and barley tea).

Sugar concentration of product: Brix 0.2% to 0.4%

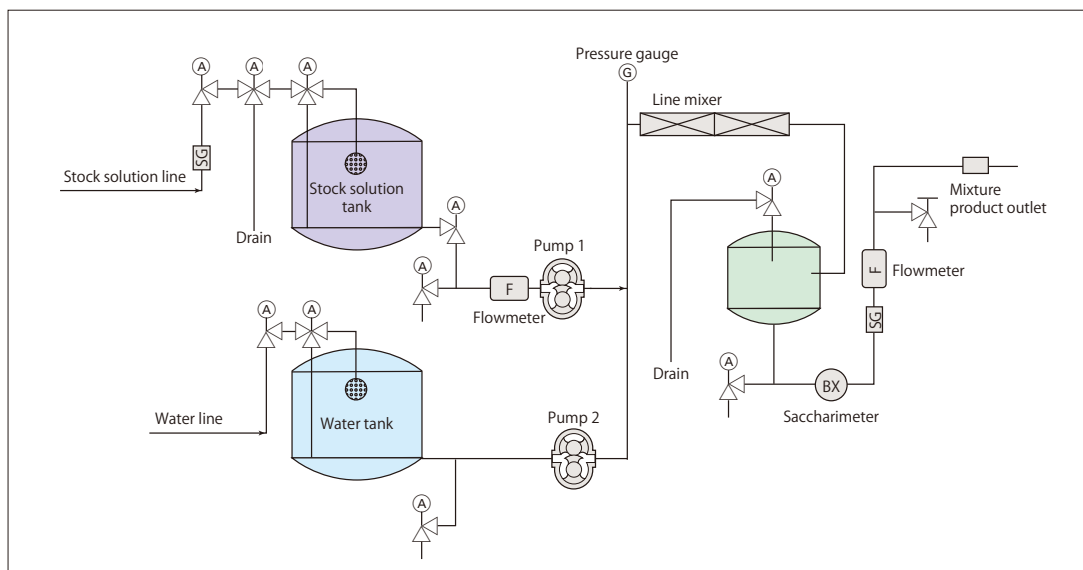
(Accuracy: within Brix  $\pm 0.02\%$ )

In the case that tea is extracted in high concentration and diluted in a tank, introducing Nakakin Inline Blending Unit eliminates a large capacity preparation tank.

Products can be produced for necessary amount when needed. That frees user from works such as preparing a tank, complicated blending calculation, and disposal of residual liquid in conventional batch processing.



## Flow Diagram, Standard Specification



Model	180	300	500
Capacity	6000 ~ 12000L/hr.	10000 ~ 20000L/hr.	18000 ~ 30000L/hr.
Blending ratio	1:3 ~ 1:6	1:3 ~ 1:6	1:3 ~ 1:6
Outer dimension	Width	1800mm	2150mm
	Depth	1800mm	1900mm
	Height	2420mm	2420mm
Power	15kVA	20kVA	25kVA
Weight	900kg	1050kg	1300kg

\* The specification above is an example. Do not hesitate to consult with us.

## Specialties of Nakakin System Development Office

**Small number of selected personnel consistently perform from proposal of specification to design, manufacturing, coordination, and after-sales care. Therefore, There is no such thing as below;**

- Contents in received quotation are inconsistent with those I explained.
- Installed machine is slightly different from that I expected at first.
- Once the machine is installed, supports for specification change or modification are poor.
- My inquiry is passed around.
- ◎ A staff member who actually designs and manufactures products receives your request. So,
  - Any detailed request will be answered right away.
  - A layout tailored to your installation site and process will be proposed.
- ◎ A staff member who actually performs coordination and after-sales care receives your request. So,
  - A proposal considering practical usability will be made.
  - A proposal considering future works such as maintenance, modification, and specification change will be made.
- ◎ A staff member who is actually involved in the introduction of the machine performs after-sales care. So,
  - Prompt action will be taken in case of a trouble.
  - An action considering the installation environment and usage of the machine will be taken.



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Representative :

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Contact person :



## Safety precautions

For proper operation of the machine described in this catalogue, before using, make sure to read through the *instruction manual*.

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