Dieta®



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DIETA MIXER KETTLE OPERATIONS

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CONTENTS

Mixing	5
Mixing tool	6
Food temperature control	9
Jacket temperature control (only)	10
Washing the kettle	11
Mixer Kettle Production Capacity	12
Typical Heating times	13
Cook-Mix-Chill in mixer kettle	14
Dieta Cook-Mix-Chill Performance	15
Icebank for cook-mix-chill	17





THANK YOU FOR CHOOSING THE DIETA KETTLE!

Dieta mixer kettle was a smart choice by you - It can combine three food preparation functions: cooking, mixing and chilling. Thereby saving time, labor, and manual work. Additionally, it will increase the level of food safety and productivity of your kitchen.

This publication contains instructions for operation of mixer kettles.

Please note that this is not a user manual. For trouble free use of kettles, please read the user manual, which was supplied with the kettle.

We wish you every success with your Dieta Kettle!

DIETA team





OPERATIONS

Mixing

Mixing speed

The Dieta mixer kettles include a powerful integrated mixer.

The use of mixer is designed to work efficiently regardless of the kettle size. The speed selected in controller is always relative to the product in the kettle. So one mixing food with one mixing speed, is always similar between all kettle sizes.

Other way to say this is, that selected mixing speed is rim speed, when axle speed [= r.p.m.] is dependant on kettle diameters.

This way your cooking programs and processes can be easily moved from one kettle to anohter and you can utilize the complete speed range of the mixer.

Typica	l m:	ixing	
speed	and	mode	

Boiling (potatoes, pasta, rice)	Forward, long pause Speed 1020
Soups	Forward, long pause Speed 1030
Sauces, mixing ingredients	Auto-Reverse Speed 80120
Sauces, simmering	Forward/Auto-Reverse Speed 1020
Mashing (purees)	Auto-Reverse Speed 80120
Meat	Auto-Reverse Speed 2040
Puddings, Porridges	Forward Speed 3040
Whipped desserts	Auto-Reverse Speed 80100

Mixing modes

Dieta kettles have seven differnet mixing modes to select:

P1) Forward only.

- Speeds 10 ... 200.
- General mixing that suits almost anything
- Whipping at high speeds.

P2) Auto-Reverse.

- Program: 15 s. forward, 5 s. reverse
- Speeds 10 ... 160.
- Breaking / mashing.
- Making mashed products. e.g. Breaking the potatoes in the mashed potatoes.

P3) Auto-Reverse, quick.

- Program: 5 s. fwd, 5 s. rev
- Speeds 10 ... 100.
- Suits specially for breaking minced meat in braising.

P4] Auto-Reverse, slow.

- Program: 15 s. fwd, 15 s. rev
- Speeds 10 ... 160.
- Breaking andmashing, specially for heavy mixes.

P5) Auto-Reverse, pause.

- Program: 15 s. fwd, 5 s. rev, 60 s. pause
- Speeds 10 ... 100.
- As a moderately gentle mixing suits for long time mixing
- If you do not want to break the food, but forward only mode does not mix properly.

P6] Forward only, pause.

- Program: 15 s. fwd, 60 s. pause
- Speeds 10 ... 100.
- Gentle mixing for soups.
- Evens temperatures but does not break the product.

P7) Forward only, long pause.

- Program: 15 s. fwd, 3 min pause
- Speeds: 10 ... 100.
- Very gentle mixing for e.g. soups or similar with very delicate components





Mixing tool

Today catering has a demand for a wide variety of tasty and healthy food in the most efficient way. For this reason, you need to cook various recipes one cooking equipment. Ideally, the stirrer is easily modified making it incredibly versatile and equally well suited for preparing food from deserts to warm meals:

- mashing products (e.g. potato purée)
- whipped products (e.g. deserts)
- delicate foods (e.g. milk based products) or
- heavy masses (e.g. raw cabbage)

Good news: Dieta kettles provides a way for this!

Dieta kettles unique 3-part mixing tool is a patented design and consists three parts; a center axis and two convertible side attachments. This provides the possibility to vary the tool according to the requirement of cooked food. The ergonomic in the kitchen is ensured with easy to install and change tool parts - even when ingredients are already in the kettle. In addition, the parts of the tool can be washed in standard washing machine.







Standard mixing tool for almost all cooking

Products:

The mixing tool with standard side attachments is always included in DIETA mixer kettles and is suitable for almost all mixing and almost all recipes.

Mixing modes:

A standard tool is an universal tool that fits for all mixing modes and all speeds.

Applications:

The standard tool consists a bottom scraper and a side scraper attachments. If with the standard tool the product does not mix but rather stays as one mass, it is possible to try auto-reverse mixing modes, using only bottom scrape or mixing hook special tool.



Whipping desserts and smooth sauces

Products:

Whipping attachment is suited for adding air into light products or optionally for mixing light and smooth products. Product structure should be light and allow the whipping tool to easily pass through (e.g. cream, egg whites, smooth sauces, etc.]. The lightweight tool cannot handle heavier masses.

Mixing modes:

Recommended speeds are ca. 60 for mixing (e.g. porridge, sauces) and 120 to 200 when whipping is needed to achieve desired product structure (e.g. hollandaise sauce, whipped cream).

Whipping tool is recommended to be used only with forward mixing modes (no auto-reverse).

Applications:

Whipping attachment is typically used with bottom scraper attachment by replacing the side scraper attachment with whipping tool. It is not recommended to use whipping attachment without bottom scraper as the bottom scraper helps to turn the product in the kettle. This does not only improve mixing but also reduces the forces towards whipping attachment.







Mixing heavy products in the kettle

Products:

Mixing hook is most useful with heavy products (e.g.sim. cabbage, dough or meat mixes), it helps the heavy product to "turn-around" and thus to mix. Mixing hook is a choice for products that do not properly mix (=moves as a mass) with the standard tool.

Mixing modes:

Recommended speed for mixing hook is 60 to 100.

Applications:

Mixing hook can be used alone (without other attachment) or with bottom scraper attachment. When using the bottom scraper with mixing hook (e.g. grounding meat), the bottom scraper ensures mixing of product in the kettle bottom. Though, with products that have long shreds (like shredded cabbage) the bottom scraper attachment can prevent the product from mixing. Then it is better to use only the mixing hook Cost-effective and automatic washing tool

The washing tool and automatic washing programs make kettle cleaning easy and cost-effective. You save almost 80% water and 45 minutes labor time in a day. The cleaning of mixing kettle is extremely easy!

Before cleaning use scraper to remove all loosen food and then place washing tool in the kettle. Add water (10% of volume) and a small amount of washing agent. Start washing program. Recommended speed is 80 to 160, so that the foam reaches kettle rim. After washing cycle, just rinse the foam away.

Dieta washing tool is available in two versions - one with central pillar brusher and another without.









Food temperature control

'With Dieta kettles the cooking temperature is simple to select and you can have full control over your cooking. You just select one temperature.

The precise food temperature control of makes cooking simple and effective. Only set the desired food temperature – and the kettle automatically heats food to this and then regulates the heating.

This improves cooking results and prevent food from burning, but also saves in energy and costs.

Minimum fill rate

Probe for measuring food temperature is positioned in the kettle inner wall. For this temperature measurement to work, the kettle has to be fulfilled at least to the level of the temperature probe. Otherwise, temperature measurement is not correct and kettle heating is not as precise as it could be.

Kettle size	Minimum fill
40-60-80-100n L	12 L
100-150-200	33 L
300-400-470 L	74 L

Above is minimum fill for the operation of food temperature control (or also chilling in the kettle).

Food temperature control, 1 to 99 °C

When temperature selected is from 1 to 99 °C kettle operaties with food temperature control.

With food temperature control you just select one temperature - the temperature for the food.

The kettle automatically heats food to the selected temperature and then regulates heating to hold the food in this temperature.

Jacket temperature control, 100...125 °C

If temperatures 100°C or higher is slected, then heating is not anymore controlled by food temperature. Now the kettle just heats the jacket to the selected temperature.

The food temperature can be shown, even if it is not used to control heating.

NOTE: Using temperatures over 100 °C does not necessary provide faster cooking/boiling times.

- To heat fast or for heavy boiling, use tempeerature selection 99 °C.
- Typically temperatures over 100 is only used for searing, "light browining" ingredients, or with nonwater-based products (e.g. syrup or toffee)

Mixer Kettle Operations

	Controlled by Food temperature		Controlled by Jacket temperature
139 °C	4092 °C	9399 °C	100125 °C
Proving	Gentle cooking Burn Prevent	Power cooking	Jacket temperature control
 Set temperature 1 39°C, max jacket temperature to 46 °C to prevent the food from burning. the kettle automatically regulates heating to hold food in the set temperature 	 Set temperature 40 92°C, Jacket max temperature limited to 105 °C to prevent the food from burning. The kettle automatically regulates heating to hold food in the set temperature. 	 Set temperature 93 99°C Jacket max temperature limited to 105111°C [=set food temp. + 12°C]. The kettle heats up the food as quickly as possible and automatically regulates heating to hold food in the set temperature 	 Set temperature 100125 °C Jacket heated to set temperature. The food temperature is always shown, even if it is not used to control heating.
 Autimatic proving program 	 Recommended to milk based sauces and soups. Recommended for simmering. 	 This program is recommended for boiling potatoes or reducing sauce 	 Use this when searing, "Light browning", meat [set to 115125 °C]. High temperature is also needed to make syrup or toffee.



Jacket temperature control [only]

If kettle model is not equipped with food temperature control, then only steam jacket temperature can be set. The kettle automatically regulates heating to maintain the jacket in this temperature, but user has to follow the temperature of the product cooked.

The recommended temperatures are ment as guidelines. The operation temperatures depend on the kettle size and the desired outcome.

In large kettles 200 to 470 liters the distance between the center of the kettle to the sides is greater and threrefore you may use 1 to 2°C higher temperatures, particularly in the beginning of the cooking procedure.

Generally it is better to use low temperatures because in this way kettle cleaning is easier and it saves energy. Also in many cases cooking is faster because scorching (milk for examle) works as insulator and slows cooking. (This is something that you do not need to mind with food temperature control and burn prevent function).

70°C

This temperature is recommended for holding. Note! Never use temperatures below 60°C for holding.

102°C

Soups, porridges, sauces, pastas, risottos: boiling is mild or it does not seemingly happen. This is an energy saving temperature for almost all cooking and simmering.

105°C

Proper boilingtemperature for example boiling potatoes in a ample amount of water.

115...125°C

"Light Browning" meat cubes, ground meat, stripped meat.





Washing the kettle

Clean the kettle immediately after use. Cleaning is much easier - save trouble, water, and detergent.

Kettle part

Using the wash tool is easier than washing manually.

Compared to the traditional soak-and-wash method you save 80% water and detergent.

Basic step for automatic washing:

- Cool down the inside of the kettle using water hose (mind the panel).
- Scrape all easily removable food from the kettle surface.
- Put wash tool to the kettle.
- Put some foam producing mild detergent into the kettle.
- Select WASH program and start. Adjust speed if needed (save program after adjustment).
- Add water 10% of total volume. Set the kettle heating to 40°C and put the mixer on with the lowest speed. Slowly increase the speed of the mixer until the foam almost reaches the rim. Leave this mixing speed on for a while (10 to 30 minuts).
- When the wash program is ended and kettle part is cleaned, stop the mixer, tilt the kettle and rinse..

Basic step for manual washing:

- Scrape all easily removable food from the kettle surface.
- Fill the kettle with water and mild detergant, if needed. Let it soak.
- Tilt water out, rub the rest food away using the brush or the scouring pad. If still needed, use mild detergent to remove fat.

Rinse and dry with a rubber spatula.

Lid

The lid can be removed for washing. You can wash the lid in a pot washer or by hand.

You can wash the lid also on its place.



Tools

Wash the measuring sticks, strainer plates, and mixer tools in a dishwasher or by hand.

There is no need to remove the scrapers for washing. Mixer tool may be disassembled and washed in a dishwasher rack.



Outer cladding

Do not use pressure hose! Wipe the surfaces with a microfiber cloth. If necessary, use brush or white scouring pad. Wipe the display with a microfiber cloth.





Mixer Kettle Production Capacity

When selecting equipment for efficient and productive mass catering kitchen, considerations are the requirement for cost-effective processes, the flexibility to variety meals, and the capacity to produce the necessary amount of meals day in, day out.

- Automatic cooking with mixer kettle is labor efficient.
- Mixer kettle cook variety meals from sides and sauces to desserts.
- Cooking programs requires less skilled labor and secures constant food quality.
- Mixer kettles can provide the capacity for thousands of meals.

There are always multiple solutions to plan the equipment to meet necessary capacity. We wanted to provide you a fast sheet to check the capacity of different size mixer kettles.

Process time in professional kitchen

In mass catering, the production capacity needs to be optimized for operation hours of the kitchen. Thus, we have also have provided an estimated process time for one cooking batch with mixer kettle (including preparation, cooking, and cleaning). Note that smaller kettle heats faster and thus has a shorter process time.

	Potatoes	Pasta	Rice	Soup (main)	Soup (appetizer)	Stew	Sauce	Dessert	Dessert sauce
Portion size	150g [uncooked]	50g [uncooked]	75g [uncooked]	350 ml	220 ml	250 ml	70 ml	200 ml	20 ml
40L	130	100	140	100	160	140	510	180	1800
60L	200	150	220	160	250	220	800	280	2800
80L	280	200	290	220	350	300	1090	380	3800
100L	330	250	350	260	410	360	1300	460	4550
150L	500	380	540	400	640	560	2010	710	7050
200L	700	500	740	550	870	760	2730	960	9550
300L	1040	750	1040	780	1240	1090	3890	1360	13600
400L	1440	1000	1440	1060	1690	1490	5310	1860	18600
470L	1720	1180	1710	1260	2010	1770	6310	2210	22100
Process time *	90 min to 125 min	55 min to 90 min	60 min to 95 min	75 min to 110 min	75 min to 110 min	80 min to 115 min	55 min to 90 min	50 min to 85 min	50 min to 85 min

Average portions per one cooking batch

* Cooking time to boiling varies by kettle size. The larger kettle takes a longer time to boiling.





	Potatoes (cooked)	Pasta (cooked)	Rice (cooked)	Soup (main)	Soup (appetizer)	Stew	Sauce	Dessert	Dessert sauce
40L	24	14	32	37	37	29	41	36	38
60L	37	21	50	59	58	46	64	57	59
80L	51	28	65	81	81	62	88	77	80
100L	60	35	79	96	95	75	104	91	95
150L	92	53	122	147	148	116	161	141	147
200L	128	70	167	198	200	158	218	192	200
300L	190	105	236	285	285	225	310	275	285
400L	265	140	324	390	390	3075	425	375	390
470L	315	165	385	460	460	365	505	445	460
Process time*	90 min to 125 min	55 min to 90 min	60 min to 95 min	75 min to 110 min	75 min to 110 min	80 min to 115 min	55 min to 90 min	50 min to 85 min	50 min to 85 min

Average volume (kg) per one cooking batch

* Cooking time to boiling varies by kettle size. The larger kettle takes a longer time to boiling.

Typical Heating times

Typical time for heating to boiling with electrically heated Dieta mixer kettle.

Kettle size	40L	60L	80L	100L	150L	200L	300L	400L	470L
Heating time *	18 min	20 min	22 min	27 min	32 min	33 min	35 min	47 min	55 min

* Performance according to DIN 18855-1 standard (heating time for water from 20 to 90°C)





Cook-Mix-Chill in mixer kettle

Cook & Chill process

The Cook & Chill process is becoming more and more common in the most demanding kitchens. It is a process in which the cooked products are rapidly chilled so that they quickly cross the temperature zone from 70 °C to 6 °C, where is a risk of food contamination. Subsequently, they are stored at an ideal temperature until they are required again.

The main change to traditional processes are that food production and servicing are timely separated from each other. This provides savings in work flow management, as it is possible use downtimes or quiet periods to prepare the food for the rest of the week.

Cook-Mix-Chill in Dieta kettles

Dieta Cook-Mix-Chill kettles are perfect for a kitchen that supplies chilled food as both cooking and chilling processes takes place directly in the kettle. Chilling with Dieta kettle is ridiculously straightforward. Chilling is either activated from a push button in the display or as part of automated cooking program - no hoses to attach and no extra devices to put in the kettle.

In Dieta kettles the chilling process can be automatically performed after cooking without need to handle any additional tools or move the hot food. This saves a lot of time, increases safety and ergonomics, as it minimizes the number of heavy lifts that the staff have to perform during the cooking process.

The precise control of food temperature and built-in food mixer of Dieta kettles are excellent when preparing cold dishes. It guarantees that the product does not generate ice inside or in other hand reach temperatures that can promote the growth of micro-organisms. The controlled and evenly distributed drop in the food temperature provides a product, which can be kept for longer and will maintain the flavor and properties of a fresh product. With Dieta Cook-Mix-Chill kettles you can guarantee the quality of the dishes, increase food conservation time and reduce the proliferation of bacteria.

Cook-Mix-Chill process is dependent on the correct temperature of the food when it cross the temperature zone with a risk of food contamination. To facilitate the quality assurance of food Dieta kettles have temperature monitoring and recording possibilities for HACCP system.

Cook-Mix-Chill in Dieta kettles

- Straightforward operation Simply started from a press of a button or as a part of cooking program
- High performance Unique chilled center-axis increases the chilling surface
- **Easy installation** No need for any external devices between the icebank and the kettle

Benefits of chilling in the kettle:

QUALITY of food

- No risk of food freezing
- No risk of ice inside the food
- No drying of the food

PRODUCTIVITY of workflows

- Reduced steps in workflow
- Automatized cooking process

SAFETY, HYGIENIC AND ERGONOMICS in daily operations

- No handling of boiling hot food
- Reduced operating of devices

ECONOMICS

- Reduction in unnecessary expenditure and waste
- Energy savings
- Optimization of resources





Dieta Cook-Mix-Chill Performance

Operation principle

Dieta kettle chills food by circulating cold water in the kettle jacket. The chilling of food in the kettle is based on the temperature difference between food and the water in the kettle jacket – the end temperature of food cannot be lower than the temperature of water used as chilling media.

The water used in Dieta kettles can be either normal tap water or chilled water (temperature near 0.5C) from an external chilling system. With chilled water from an external icebank the chilling effect is high and the water consumption is low. The high rate of flow of chilled water through the kettle jacket, combined with low water temperature, produces a very high cooling effect. Still as water is circulated back to the ice bank, it is very environmentally friendly with minimal water consumption.

Chilling performance

The circulating water in kettle jacket chills the kettle surface, which then chills the food near surface. The rotating mixer moves new warm food to near the surface area, and this way helps to distribute the temperature evenly and makes chilling efficient. For this reason there are three important factors affecting the chilling performance and

- 1. the ability to distribute the temperature evenly in the food,
- 2. the temperature of chilling media circulated in the kettle jacket, and
- 3. the flow rate of chilling media
- 4. the chilling surface area

Factors for chilling performance

1. Ability to distribute heat evenly.

To get even chill effect, the mixing must "turn" food effectively - this varies by structure of the food and by mixing speed allowed by the food. It can be said that chilling times are always affected by what (recipe and ingredients) is cooked and how (process, mixing and fill rate) food is cooked. General rule is, that for effective chilling

- mixing speed around 60-80
- liquid content at least 30%
- fill rate 70%

2. Temperature of chilling media.

As chilling is based on the temperature difference between food and chilling media, the end temperature and chilling performance is always affected by temperature of chilling media. At the beginning of the chilling, when the food is near 90°C, the difference to chilling media is large and chilling is fast. When the temperature of food is getting lower, the temperature of chilling media starts to be more important – As lower temperature of chilling media means larger is temperature difference and faster is chilling.

The kettle does not make the chilling media colder. So to achieve low temperatures chilling media must be ice water. Dieta kettles has different chilling systems for different chilling solutions, which have been developed during the years to suit all needs.

3. Flow rate of chilling media

The higher the flow rate of chilling media through the kettle jacket the faster warmed water is replaced by chilled water. This way, the temperature of chilling media inside the kettle jacket stays lower and increases chilling performance.

4. Chilling surface area

The size and form of the kettle directly affects to the chilling performance – more chilling surface, more efficient chilling. For this reason Dieta MI-MX kettles has unique design where also center pillar is chilled. This increases chilling surface even 10%, compared to other kettles!





Mains water as chilling media - Chill CH1, CH2 and CH3

In these chilling options the mains water is connected directly to kettle, which circulates cold water through the kettle jackets and then exits it to floor drain. The chilling speed with tap water depends greatly on the mains water temperature and of course very low temperatures such as +3...6 °C cannot be achieved.

Examples of chilling time from 95°C to 20°C for water with tap water (12°C) as chilling media

Kettle size	Chilling time 95°C to 20°C [12°C inlet water temperature]	Chilled water flow
40 L	30 min	30 L/min
60 L	35 min	30 L/min
80 L	40 min	30 L/min
100 L	50 min	30 L/min
150 L	60 min	30 L/min
200 L	70 min	30 L/min
300 L	70 min	55 L/min



Ice-bank located next to the kettle



Multiple kettles connected to the ice bank located a floor below

Ice water from external ice bank as chilling media – Chill CH4 and CH5

The chilling is fully automatic and circulates chilled water from an external icebank. This system uses the same chilling water over and over again, saving water. With chilled water from an external ice bank and the right cooking process, a high degree of cooling can be achieved. Circulating water back to the ice bank is highly environmentally friendly and minimises water consumption.

Two options are available for circulated water cooling:

• The CH5 Chill System has an integrated intermediate tank in the kettle and a pump to enhance the flow of the cooling water back into the ice bank. The ice bank can even be located on a different floor.

• The CH4 Chill System circulates cooling water to and from an ice bank located next to the kettle

Examples of chilling time from 95°C to 6°C for water with chilled water from external ice-bank [0,5°C] as chilling media

Kettle size	Chilling time 95°C to 6°C (0,5°C inlet water temperature)	Chilled water flow
40 L	40 min	85 L/min
60 L	50 min	85 L/min
80 L	60 min	85 L/min
100 L	50 min	85 L/min
150 L	55 min	85 L/min
200 L	60 min	85 L/min
300 L	80 min	85 L/min

Multiple kettles can be connected to the same icebank, but each kettle should have an individual pump, water inlet line to the kettle and a water return line back to the icebank. This is needed, so that each kettles flow can be adjusted individually and that one kettle chilling cycle do not effect to another kettle.





Icebank for cook-mix-chill

Calculate the capacity of icebank

The dimensions of the chilling system and the ice bank/ chilled water reservoir will depend on the number and size of kettles and the expected number of chillings per day. These dimensions must therefore be determined by a chilling systems contractor, who can also assess whether the existing chilling equipment can be reused, whether a supply of ice/chilled water can be built up overnight when electricity is cheap, etc.

When considering the installation room requirements, nota also that you need service area around the icebank AND somewhere in the building the compressors [cooling machines].

The chilling of food from boiling hot 95°C to +3°C consumes chilling power approx 0.11 kWh/kg food. The following list contains guidelines for chilling power needed for this temperature range for different kettle sizes (one chilling cycle per kettle):

Kettle	Capacity (needed food+jacket)
Liters	kWh
40	5.5
60	7.7
80	10
100	13
150	19
200	25
300	37

Example:

The kitchen has 3 kettles, 200, 200, and 150 liters. They want to chill with all of the kettles twice a day in shortest possible time.

Then Ice bank capacity needs to be:

- 200+200+150 liter kettles need chilling power 25+25+19 kWh = 69 kWh.
- Chilling twice means 2 x 69 = 138 kWh. Typical selction for ice bank capacity would then be 132 kWh.

Examples of ice banks

Manufacturer PACKO

model	Chilling capacity (kWh)	lcebank size (mm)
PIB 8	9	1162 x 923 x 1328
PIB 13	11	1162 x 923 x 1328
PIB 25	22	1337 x 1360 x 1960
PIB 40	35	1337 x 1360 x 1960
PIB 60	53	1817 x 1360 x 1960
PIB 80	71	2257 x 1360 x 1960
PIB 120	106	3137 x 1360 x 1960
PIB 160	141	4017 x 1360 x 1960
PIB 230	205	3360 x 2176 x 1985
PIB 370	322	4695 x 2176 x 1985

For the installation room you need also service area around the ice-bank AND somewhere in the building the compressors (cooling machines).

Cooling units: Electrical power

PIB 8 to 120	1 unit á 1.1 to 10 kW
PIB 160	2 units á 6.9 kW
PIB 230	2 units á 10 kW
PIB 370	4 units á 8.9 kW



PIB 25 and PIB 40 with integrated cooling unit at the end of the ice-bank







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