



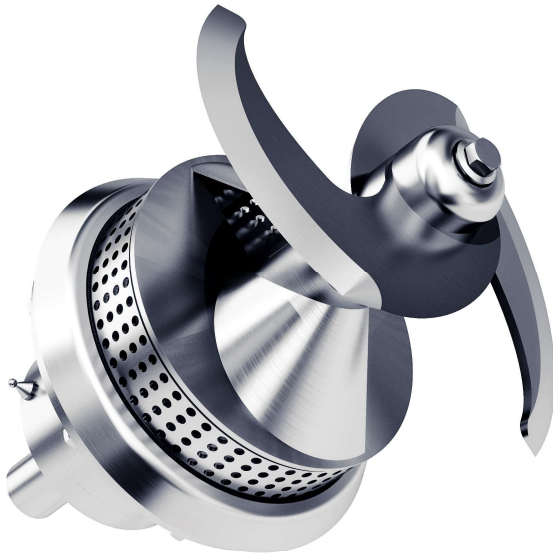
*Masters of mixing since 1993*

**Ozzago**

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 **Limitech**

# Limitech in short



- 25 years of experience
- 30 employees under the same roof, where all our functions from sales to production are taking place.
- 500 projects done
- Export to EU, Asia, Africa and Americas
- Unique mixing technology, all the way to 1 micron
- Our expertise and focus is mainly on
  - Mayonnaise & Dressing
  - Soups, Sauces & Ready Meals
  - Jams & Marmelades
  - Processed Cheese

# Product portfolio



**MyMix / R&D-systems**



**LIMIX-systems**



**SuperFlow-systems**



**Cooker-systems**



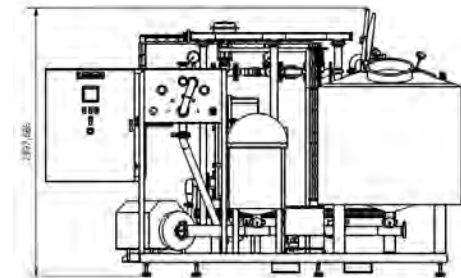
**UHT-systems**



**Preperation**



**Storage-systems**



**Cleaning / CIP-systems**

# MyMix

**Variants:** MyMix

## **Capacities**

MyMix: 10L

## **Features:**

- Mixing wheel, stator, knife
- Start/stop mixer
- Agitator with frequency inverter
- Lifiable lid
- Vacuum
- Cooling in jacket
- Spray balls (CIP)
- Direct and indirect steam + insulation
- Frequency inverter on mixer
- PLC
- Inlet for water in lid
- Mounted funnel



*The MyMix is Limitech's 10L lab mixer.*

*The small 10 l mixer gives the exact same output as a 3000 l mixer, so when you get your perfect test result you can go directly to large scale production. The mixer is fully scalable which means you can test and run full scale production on similar machines.*

*The lab mixer is perfect for the following solutions:*

*Prepared foods, Preserves, Dairy, Cheese, Sauces, Spreads, Ice Cream, Desserts, Health Care, Confectionary etc.*

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# P-Series



*P-Series are process mixers and equipped with mixing wheel and Agitator. The difference between the 4 variants is lid design, and vessel Size. The size of vessels corresponds to the intended use of each variant On the next page you can find the end products and corresponding P-Series mixers*

**Variants:** P1, P2, P3 & P4

## Capacities

P1: 300 - 1500L

P2: 300 - 2000L

P3: 100 – 1000L

P4: 10 - 300L

## Individual features:

P1: Welded lid with man-way hatch, vacuum, Cooling in jacket & spray balls.

P2: Welded lid with man-way hatch & spray balls (CIP).

P3: Hinged Lid.

P4: Liftable lid, vacuum, cooling in jacket, spray balls (CIP)

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# P-series product configuration

Machine	Function	Mixing wheel	Stator ring	Knife	Agitator	Double arm agitator. Scraper on one arm	Single arm agitator with scraper	Multi agitator	Double arm agitator no scrapers	Frequency inverter on agitator	Vacuum system	Funnels	Dimple jacket	Direct Steam	Indirect steam	Cooling	Direct/indirect steam + cooling	Spray balls (CIP ready)	Two speed on mixer	Frequency inverter on mixer	Manual control	PLC control	Inlet of water in lid	Sight glass
P1		●	●	●	●	○	○	●	○	●	●	○	●	○	○	●	○	●	●	○	●	●	○	●
P2		●	●	●	●	●	○	○	○	●	○	○	○	○	○	○	○	●	●	○	●	○	○	○
P3		●	●	●	●	○	○	○	●	●			○	○	○	○	○		●	○	●	○	○	○
P4		●	●	●	●	○	●	○	○	●	●	○	●	○	○	●	○	●	●	○	●	○	○	●

● = Standard

○ = Option

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# Matching P-series to end product

Machine	Your product	Mayonnaise	Dressing	Sauce	Ketchup	Dips	Spreads	Processed Cheese	Cream Cheese	Recombined Cheese	Analgue Cheese	Feta	Mozzarella	Sour crean	Rice Dessert	Fruit sauce	Jam	Marmelade	Mousses	Toppings	Pie filling	Stews	Mashed potatoes	Marinades	Soup	Purée	Bread rework	Baby food
P1		●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
P2			●	●	●	●																		●	●		●	
P3															●	●	●	●	●	●	●	●	●	●	●		●	●
P4		●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●		●	●

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# S-Series



**Variants:** S1, S2 & S3

## Capacities

S1: 500 - 6000L

S2: 50 - 6000L

S3: 200 – 500L

## Individual features:

S1: Welded lid with man-way hatch, vacuum, spray balls (CIP ready)

S2: Welded lid with man-way hatch & spray balls (CIP ready).

S3: Hinged Lid.

*S-Series are mixers intended for dissolving and are equipped with Mixing wheel only. The difference between the 3 variants is lid design And size of the vessel. The size of vessels corresponds to the intended use of each variant*

*On the next page you can find the end products and corresponding S-Series mixers*

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# S-series product configuration

Machine	Function	Mixing wheel	Stator ring	Knife	Vortex breaker	Vacuum system	Funnels	Dimple jacket	Direct Steam	Indirect steam	Cooling	Direct/indirect steam + cooling	Spray balls (CIP ready)	Two speed on mixer	Frequency inverter on mixer	Manual control	PLC control	Inlet of water in lid	Sight glass
S1		●	●		●	○	○	○	○	○	○	○	●	●	○	●	○	●	○
S2		●	●		●			○	○	○	○	○	●	●	○	●	○	●	○
S3		●	●		●			○	○	○	○	○		●	○	●	○	●	○

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● = Standard

○ = Option

# SuperFlow - serie



S1



S2



S3



S4



S5



S6



S7

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# Matching S-series to end product

Machine	Your product	Vegetable cream	Hydrocolloids incl. Pektin	Toppings	Marinades	Soup	Purée
S1		●	●	●	●	●	●
S2			●	●	●	●	●
S3			●	●	●	●	●

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# SIF In-Line



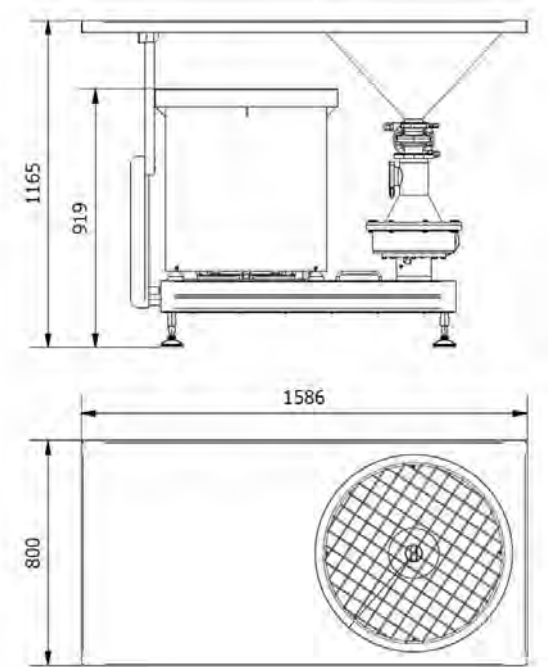
**Variants:** SIF In-Line

**Processing parameters:**

Final Products: 12.000 L/h

Min. Circulation: 16.000 L/h

Viscosity app. 500 cP



**Standard features:** High Shear mixer with water flushed seal, motor frame with 4 adjustable legs, motor and V-belt drive, powder funnel, connections; clamp and sms, internal surface finish  $Ra \leq 0,8 \mu m$

**Food industry applications:**

Incorporation of stabilizing agents

Incorporation of milk powder

Soft drinks preparation

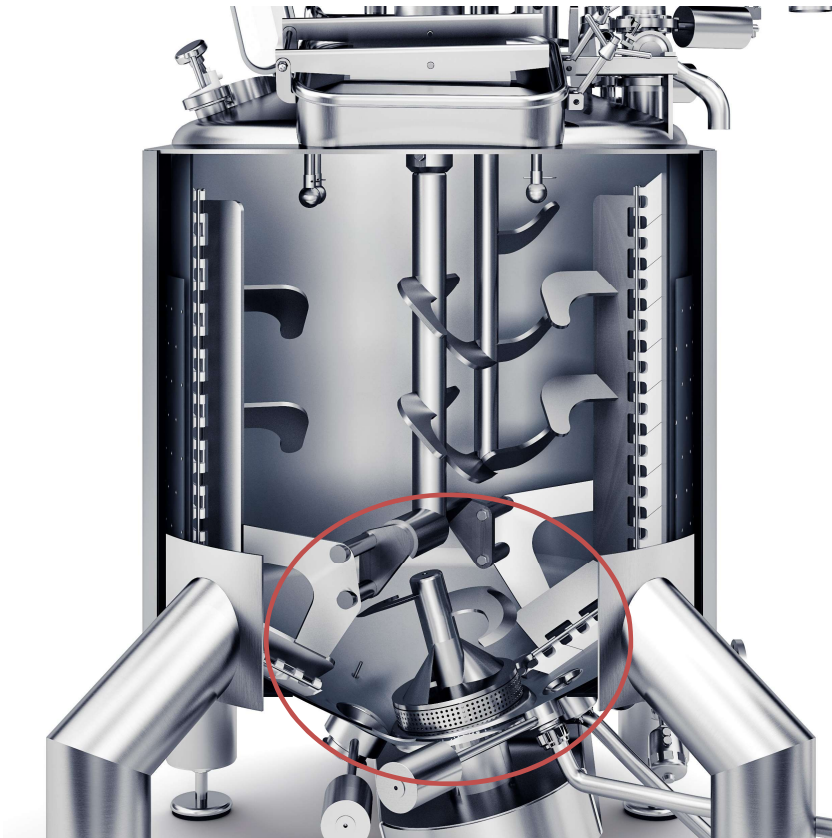
*Our SIF In-Line mixer is specially designed to give you a quick and efficient blend of dry and liquid ingredients by recirculation. To avoid "fish-eyes" or lumps in the product the dry and wet ingredients are kept separate until meeting in the mixing chamber.*

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# Technology overview

- [Limitech mixers](#)
- [Mixing](#)
- [Agitation](#)
- [Direct heating](#)
- [Indirect heating](#)
- [Indirect cooling](#)
- [Vacuum](#)
- [CIP](#)

# Mixing wheel



## How

Mixing wheel is positioned in an angle in bottom of the vessel

## Advantages

- Product can be pumped out at the lowest point without having to go through the mixer causing damage to particles
- Increasing the mixing effect

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Limitech



# Mixing tools

## Flexibility

All parts of the mixing can be changed according to process and recipe at any given time





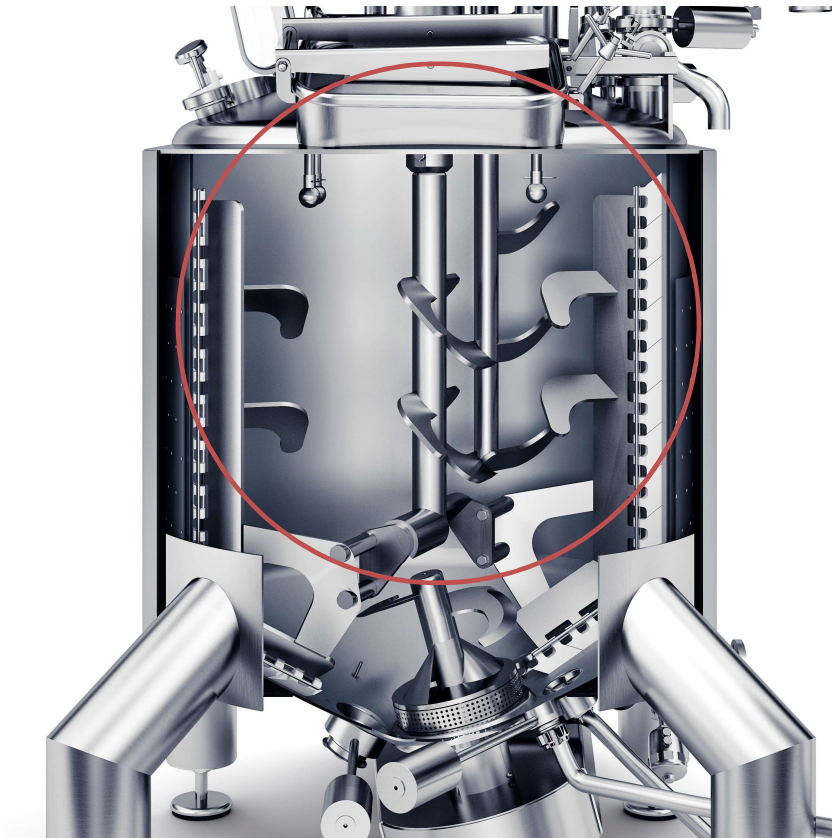
# Mixing tools

MIXING TOOLS						
APPLICATION AREA	SINGLE KNIFE	DOUBLE KNIFE	MIXING WHEEL	MIXING WHEEL STATOR RING	MIXING WHEEL STATOR RING KNIFE	SPECIAL TOOLS
Bakery	•	•	•	•	•	
Confectionery	•	•		•	•	
Dairy products	•		•	•	•	
Preserves				•	•	•
Spreads		•		•		
Prepared foods			•	•		
Sauces		•	•	•	•	

STATOR RINGS				
APPLICATION AREA	1- 20 MM HOLES	GUIDED STATOR (INLINE MIXING)	SLANTED STATOR	IN-LINE MIXER
Bakery	•	•	•	•
Confectionery	•	•		
Dairy products	•		•	•
Preserves				•
Spreads	•	•		•
Prepared foods	•			
Sauces	•	•	•	•

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# The agitator



## How

The agitators gently blends and scrapes the sides of the vessel

## Advantages

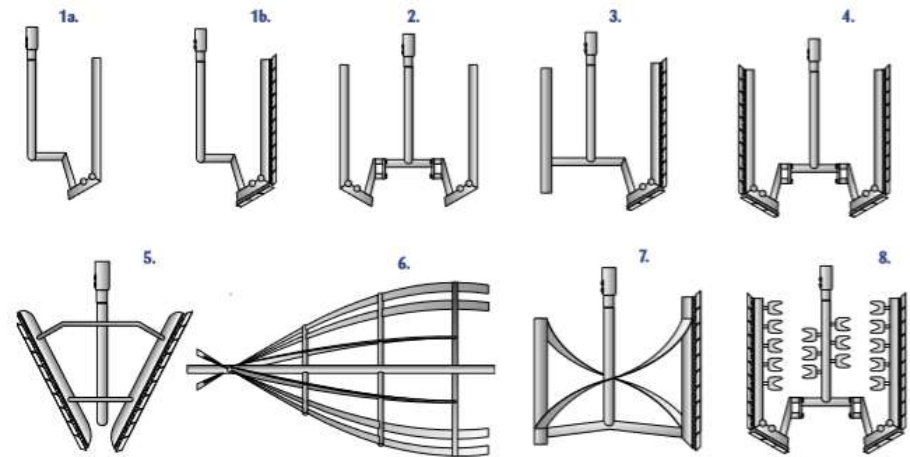
- Equal distribution of heat and cooling
- Equipped with a frequency inverter to give variable control of speed
- Designed not to destroy particles

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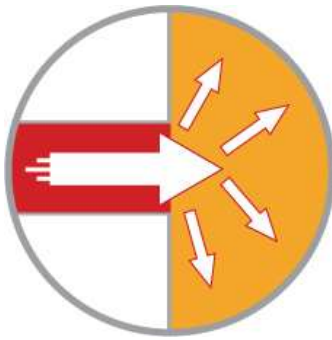
# Agitators

AGITATORS APPLICATION AREA	1. A/B SINGLE AGITATOR	2. DOUBLE AGITATOR	3. DOUBLE AGITATOR WITH SCRAPER ON ONE ARM	4. DOUBLE AGITATOR WITH SCRAPER ON TWO ARMS	5. CONICAL AGITATOR	6. RIBBON BLENDER	7. SPECIAL AGITATOR	8. MULTI AGITATOR WITH SCRAPER ON TWO ARMS
Bakery		•	•	•	•		•	
Confectionery	•	•						•
Dairy products	•		•		•		•	•
Preserves		•		•		•		
Spreads	•		•	•				
Prepared foods		•	•	•	•			•
Sauces			•	•	•			•



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# Direct heating



## Functionality

Direct injection of food quality steam in to the product

## Advantages

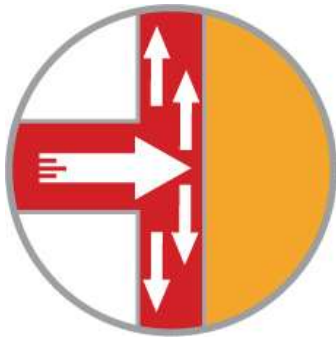
- Rapidly heats the product and allows for a faster batch time
- Does not burn the sides
  - Less cleaning
  - No after taste

## To consider

It adds water in to the product, which has to be accounted for in to recipe

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# Indirect heating



## Functionality

Steam heats through the dimple jacket around the tank.

## Advantages

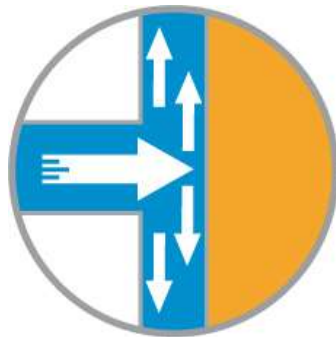
- Does not add water in to the product making it easier to control recipes
- Less expensive steam can be used

## To consider

Keeping good agitation to lessen any burns on the side of the vessel

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# Indirect cooling



## Functionality

Ice water runs through the dimple jacket around the tank.

## Advantages

- Cools and cooks in the same tank
- Less expensive than a surface scrape heat exchanger

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# Vacuum

## Functionality

Vacuum system mounted directly on the mixer



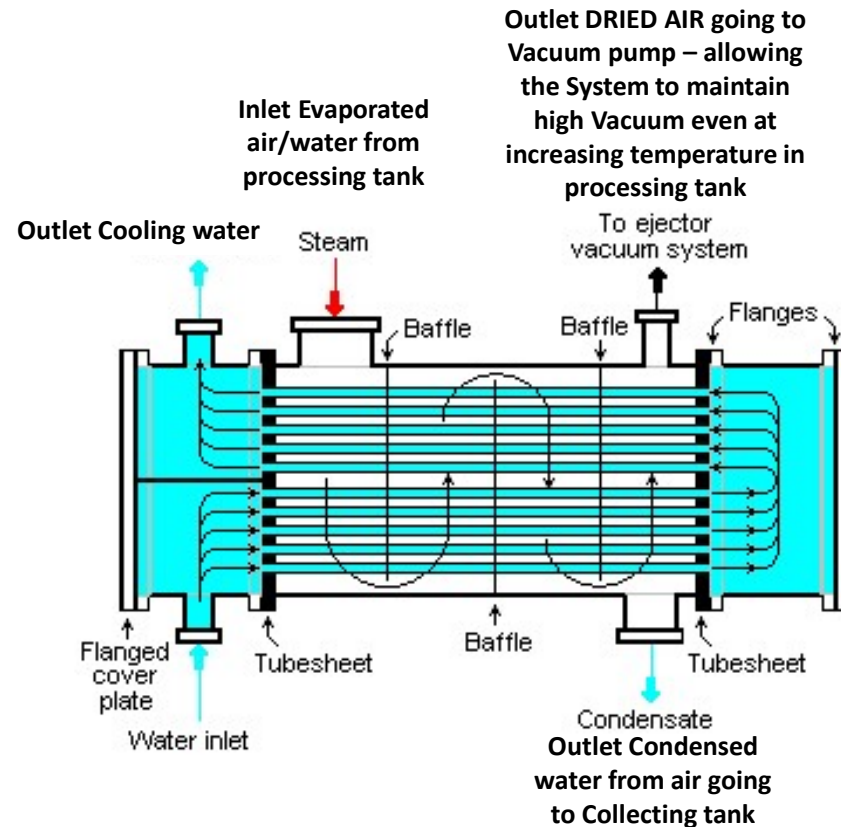
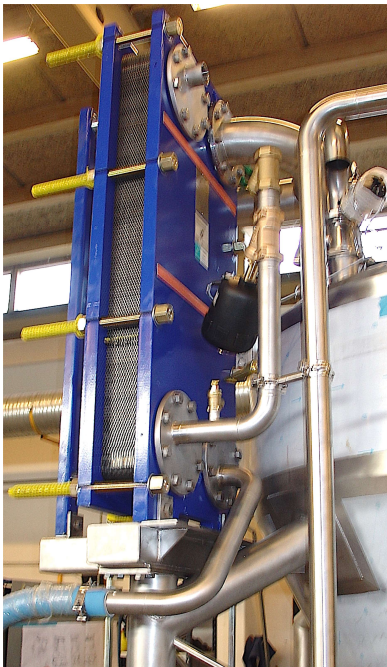
## Advantages

- Ability to boil under vacuum at lower temperature
  - Making it easier to ensure no burn / after taste
- Dry ingredients will be fed in from the bottom
  - Mixes immediately
  - Less risk of lumps/"fish eyes"
- Derates and sucks air from the product
  - Less air in end product – easier to bottle
  - No additional de-aerator needed
- Rapid cooling
  - Using vacuum and cooling simultaneously will reduce cooling time significantly

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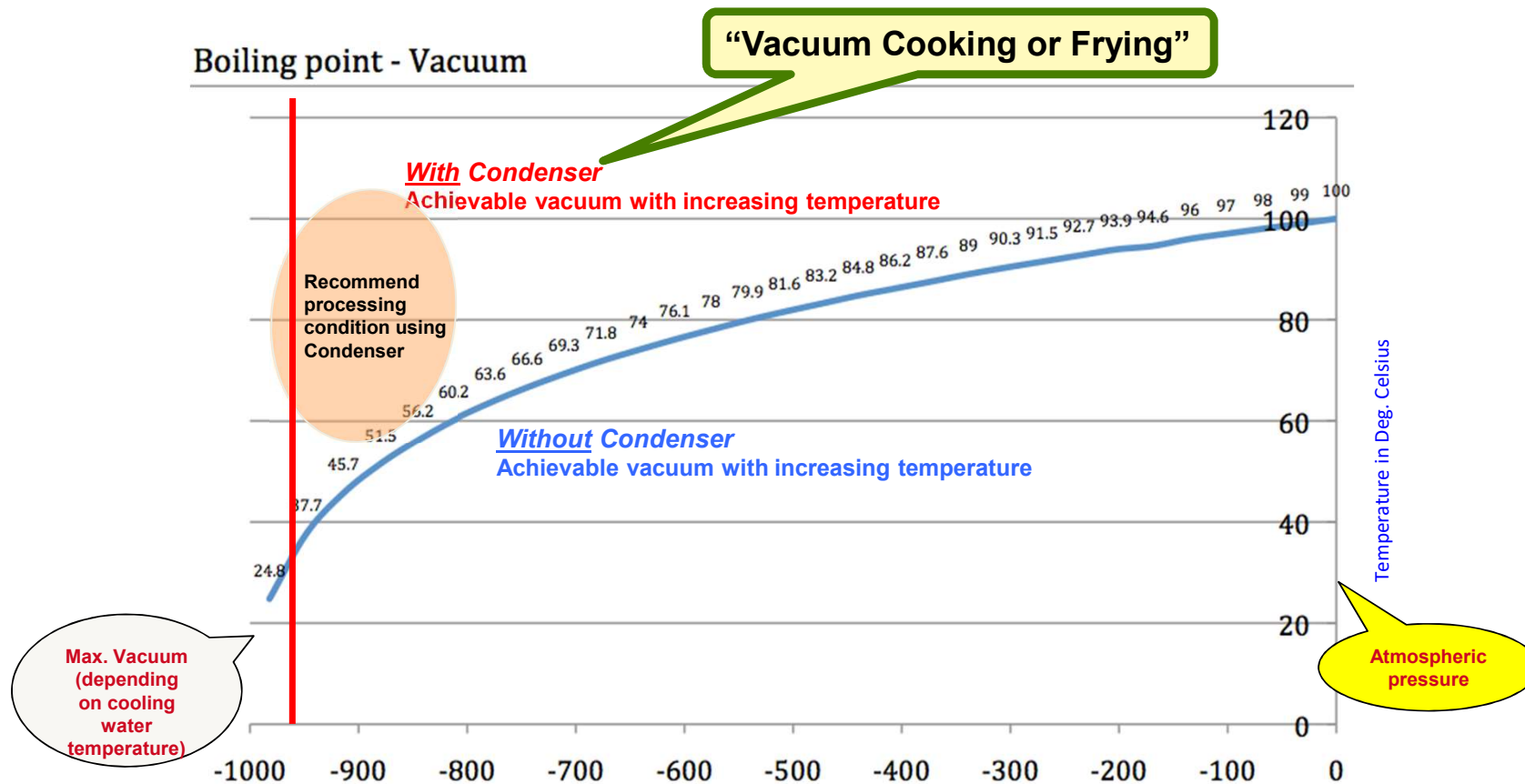
# Vacuum Condensing



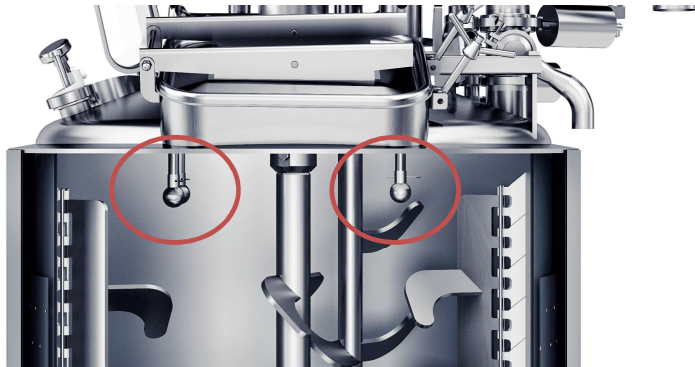
## Vacuum Condensing - highlights:

- The system can maintain high vacuum level even at increasing temperature in processing tank
- Cooking & Frying at lower temperature (60-85°C) resulting in better product quality and color
- Faster cooling process by means of Vacuum condenser system

# How does vacuum condensing work?



# CIP system



## Functionality

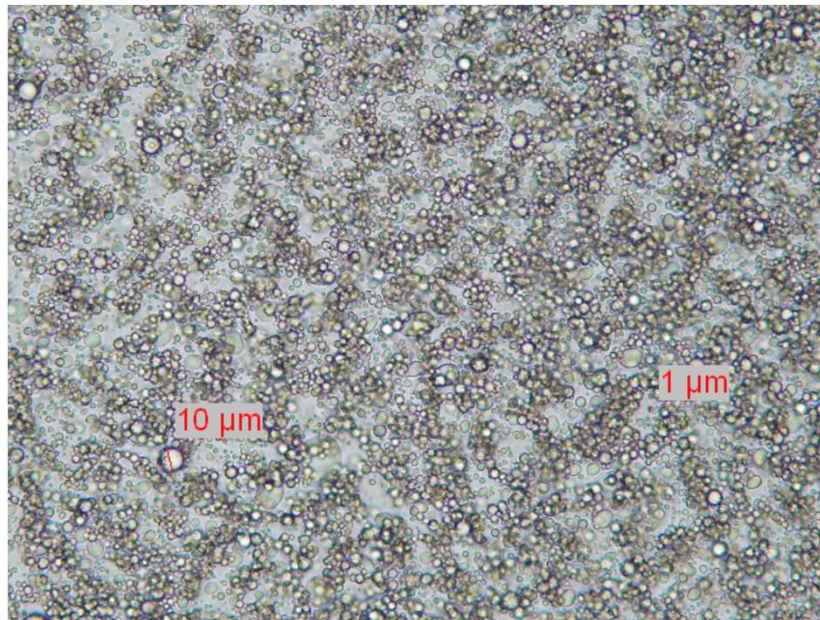
CIP Quick flush sprayballs located inside the vessel – enabling a cleaning time of maximum 10 min.

## Advantages

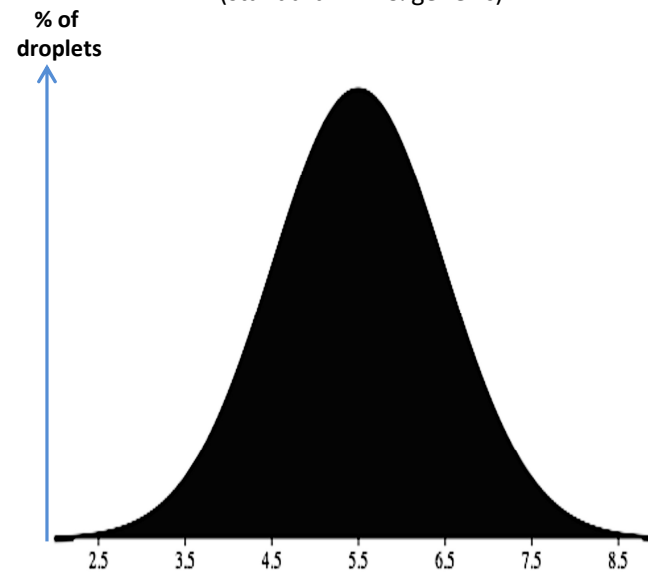
- Cleans the vessel within any operator interference
- Faster cleaning for a higher mixer output

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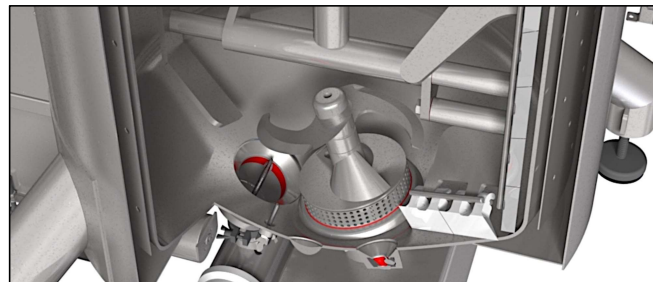
## Mayonnaise (o/w emulsion) using Limitech Turbo-mixer



Gaussian oil-distribution curve  
(standard D=1 & generic)



Trial: Delikatess Mayo  
Magnification: 200  
Date of analysis: 24.11.08  
Oil-droplet range: 1-10 μm





# R&D - Systems

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MyMix 10L



LiMix 4 10 - 60l Mixer



Test SuperFlow 3 Mixer



Ice cream test unit



Test UHT Unit 80L/H

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