

2025 International Citrus & Beverage Conference

September 25th, 2025
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TERLET TERLOTHERM

SCRAPED SURFACE HEAT EXCHANGER



FrymaKoruma Stephan Terlet

TERLET TERLOTHERM

Heat exchange with optimum product quality retention

Whether you're pasteurizing, or cooling, sterilizing or crystallizing, whenever your product quality is key: the Terlet Terlotherm is the heat exchanger to go for.

SOUPS & SAUCES

CONFECTIONERY & PASTRY

DAIRY

POTATO MASH

FRUIT & VEGETABLES

CREAMS & LOTIONS

STEW, SOUPS & SAUCES

HUMMUS & SAVOURY SPREADS



TERLET TERLOTHERM

Applications

Let's talk Hummus

Thanks to its large variety this popular sauce is a reliable source of growth in the vegan category.

Cooling this high viscous product is one of the main challenges for successful production. The gentle but effective cooling make the Terlotherm perfectly suitable for the cooling stage:

Your Benefits

- Optimum product quality
- Saves energy and space
- Fast cooling lowers bacterial content in the end product
- Low maintenance, low cost of ownership



Product examples



OUR CORE APPLICATIONS: FOOD

MAYONNAISE & DRESSINGS



HUMMUS & SAVORY SPREADS



NUT & SEED PASTES



KETCHUP & SAUCES



CHOCOLATE / GANACHE



VEGAN ALTERNATIVES



BABY FOOD



BAKERY INGREDIENTS & SWEET SPREADS



PROCESSED CHEESE & CREAM CHEESE



STEW, SOUPS & SAUCES



MUSTARD



PETFOOD



OUR CORE APPLICATIONS: HEALTH, PERSONAL CARE & PHARMA

OINTMENT



TOOTHPASTE



CREMES & LOTIONS



SUN CREMES & LOTIONS



TERLET TERLOTHERM

Machine Introduction

Terlotherm

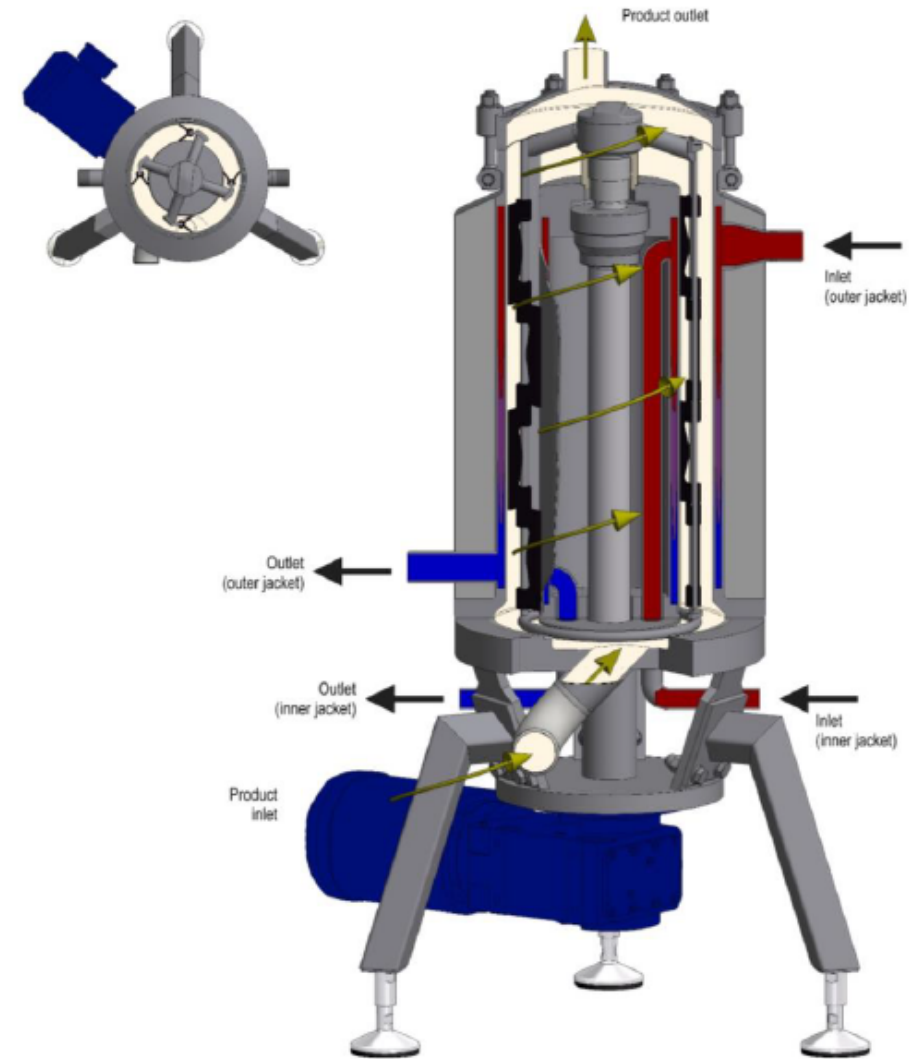
- Capacities up to 10,000 kilograms/hour
- Functions:
 - pasteurization
 - sterilization
 - cooling
 - heating
 - crystallization
 - cooking
- Main Applications:
 - soups & sauces
 - dairy
 - fruit & vegetables
 - confectionary & pastry
 - potato mash
 - creams & lotions



TERLET TERLOTHERM

Technology

- Double wall cylinder ensure efficient heat exchange on a small footprint
- Efficient heat exchange due to continuous scraping of the entire heat exchange surface
- Product flow upward to ensure consistent retention time
- Tangential product inlet with deceleration chamber
- Medium in counterflow for maximum efficiency
 - Glycol (8000 – 35000 ltr/hour)
 - Water (8000 – 25000 ltr/hour)
 - Steam (up to 6 bar(g), 165°C)
- Low pressures and low rpm



TERLET TERLOTHERM

Terlotherm Delta range

	Delta 50	Delta 100	Delta 150	Delta 200	Delta 450	Delta 700
Heat exchange surface area (m ²)	0,5	1,0	1,5	2,0	4,5	7,0
Capacity* (kg/h)	50 - 300	150 - 600	300 - 1.000	500 - 1.500	700 - 5.000	1.000 - 10.000
Maximum pressure product area (barg)	10	10	10	10	10	10
Temperature range medium area (°C)	-20 to 165	-20 to 165	-20 to 165	-20 to 165	-20 to 165	-20 to 165
Footprint (m ²)	1.0	1.0	1.0	1.0	1.4	1.4

- First Terlotherm made in the 1970's
- Installed base +1500 units worldwide
- Product wetted parts made of Duplex for high resistance

** Indication, capacity may vary according to product and process*

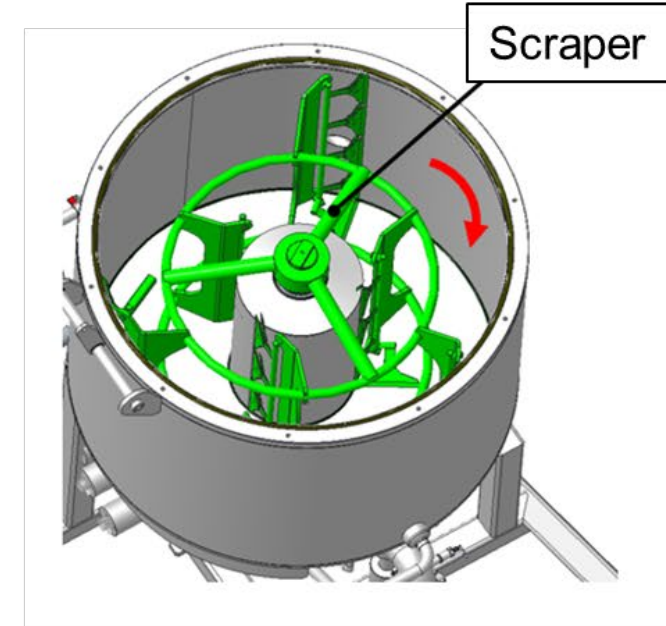


TERLET TERLOCOOL

Batchwise processing – Scraped surface heat exchanger

Terlotherm

- Capacities up to 10,000 kilograms/hour
- Functions:
 - **Cooling only** down to approx. 5°C
- Main Applications:
 - soups & sauces
 - dairy
 - fruit & vegetables
 - confectionary & pastry
 - potato mash
 - creams & lotions



HEAT EXCHANGERS

Main types

Plate heat exchanger



Watery products



Shell and tube



Low-viscous products



Scraped surface (SSHE)

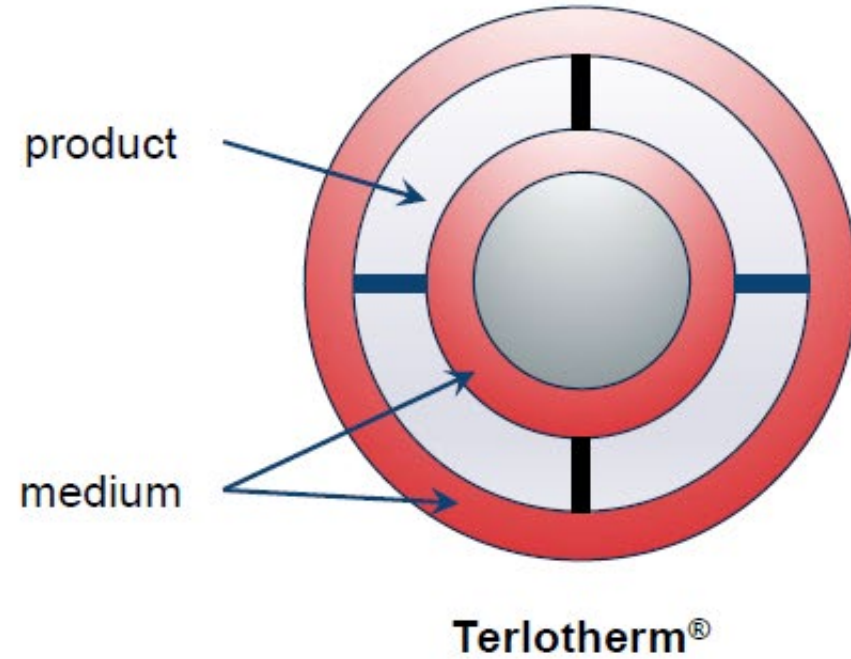
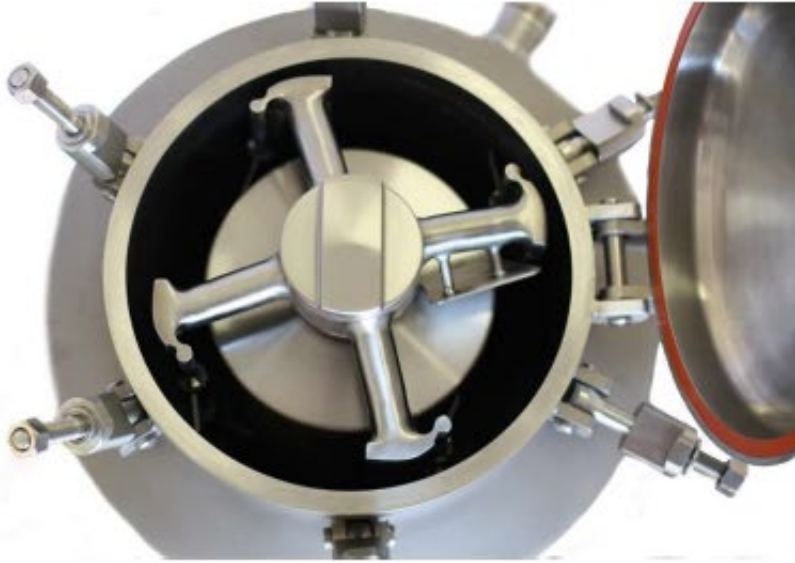


High viscous products



TERLET TERLOTHERM

Technology



Combines the advantages of conventional SSHE and tubular

TERLET TERLOTHERM

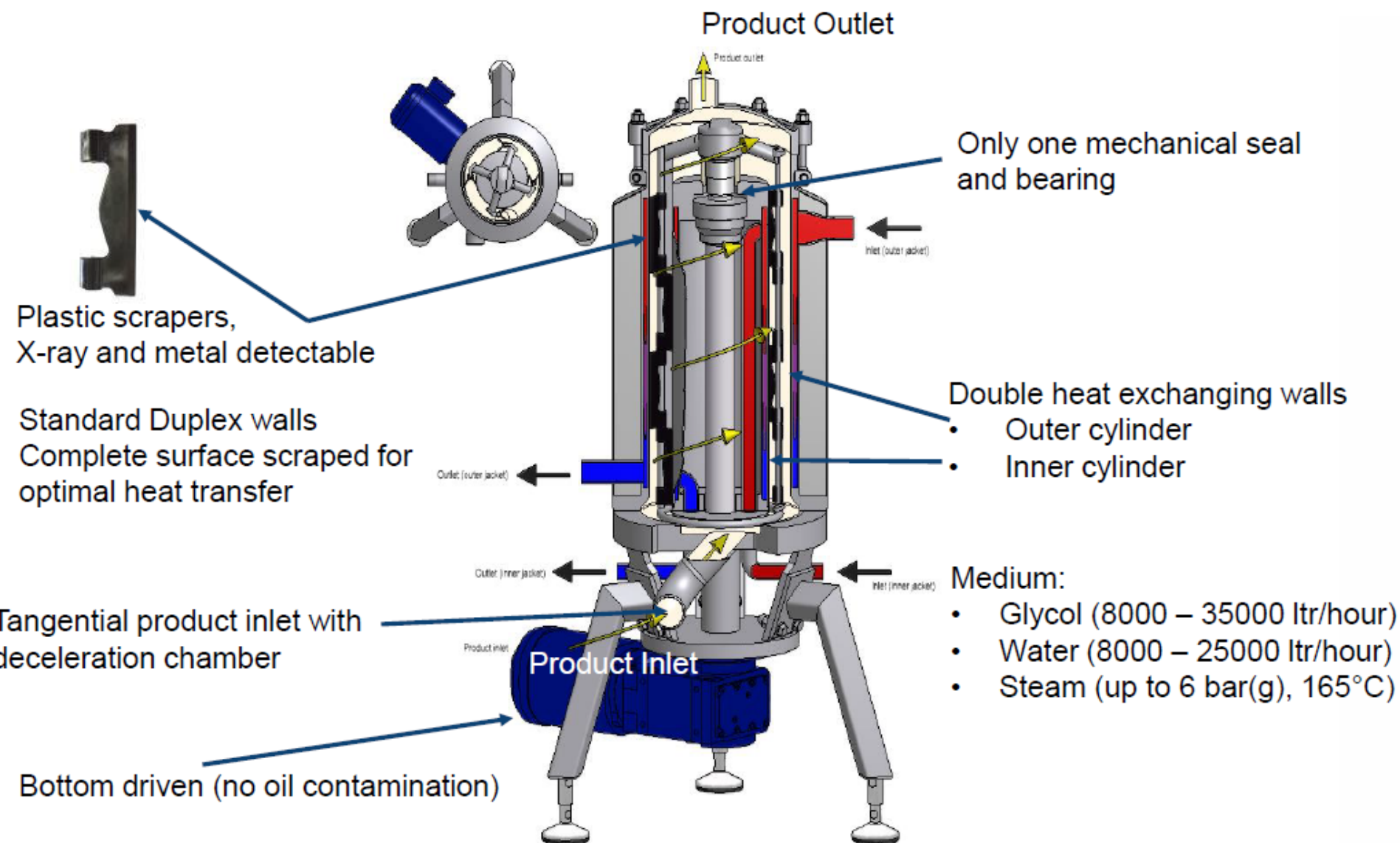
Design

- Large range, for most processes only one unit needed
- One mechanical seal construction means less spare-parts costs
- Low pressures and rpms due to Terlotherm design causes low wear and long uptimes
- Simple access and inspection via the top lid, without seal disturbance
- Both inner and outer cylinder can be dismantled for refurbishment or replacement
- Bottom driven, no oil contamination
- Plastic scrapers, X-ray and metal detectable



TERLOTHERM

Scraped Surface Heat Exchanger



TERLET TERLOTHERM

Module examples

Terlotherm modules and system integration

From a single machine for heating or cooling with local automation, up to a complete pasteurization system, ProXES is your reliable partner

Terlotherm & buffer skid

- Buffer tank
- Piping and instrumentation
- Controls
- Flow plate
- CIP connections



TERLET TERLOTHERM

Module examples

Terlotherm modules and system integration

From a single machine for heating or cooling with local automation, up to a complete pasteurization system, ProXES is your reliable partner

Terlotherm cooling skid

Plug-and-play flexible cooling unit with:

- Product pump
- Piping and instrumentation
- Controls
- CIP connections



TERLET TERLOTHERM

Key benefits - technical

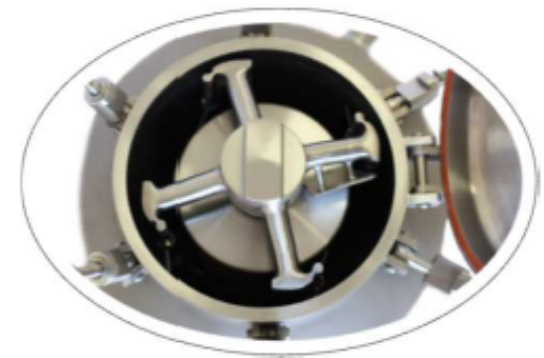
High quality equipment

- USDA, U-stamp, ASME, CRN codes approved
- Product wetted parts out of stainless-steel Duplex
- All product contacting parts FDA approved material
- Metal detectable scrapers/seals standard.

Low operating costs

- Energy efficient
- Only 1 mechanical seal. No special tools to remove/install
- Longer uptime due to low pressures and lower rpm.
- Designed to ensure simple and fast maintenance.

High quality products at low operating costs.



FRYMAKORUMA.

STEPHAN.

TERLET.

WE ARE PROXES.

Machine Portfolio



STEPHAN UNIVERSAL MACHINE UMX 5

PRODUCTION SETUP – MACHINES & MODULES

Multiprocessing Units– Overview standard machines

**UNIVERSAL MACHINE
(UM)**

IN-TANK High-Shear unit



up to 300 kg/h*	
UMX 5 2 l	UM 24 18 l
UM 60 40 l	UM 74 50 l



**MICRO CUT SYSTEM
(CT)**




Rotor Stator cutting



up to 30,000 l/h*	
MC15	MCH20
MCH150	MCH180



Multiprocessing Units– Overview batch systems

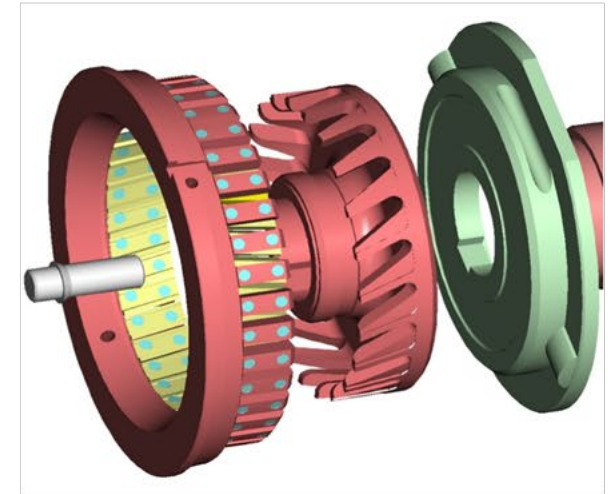
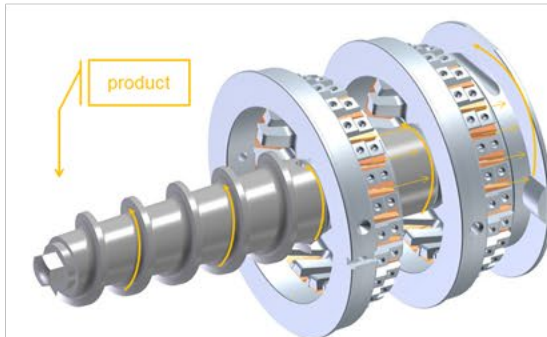
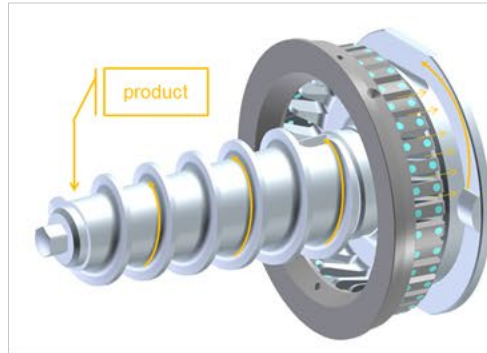
UNIVERSAL MACHINE (UM)		COMBITHERM (CT)		COMBICUT (TC)		VACUTHERM® (VMC)		COOK-IT® (CI)	
IN-TANK High-Shear unit		IN-TANK High-Shear unit		IN-TANK High-Shear unit		IN-LINE High-Shear unit			
									
up to 1,020 kg/h		up to 3,600 kg/h		up to 3,480 kg/h		up to 3,600 kg/h		up to 2,400 kg/h	
UMSK 5 2 l				TC 400 280 l		VMC 401 400l		CI 401 400l	
UM 130 90 l	UM 200 170 l *	CT 800 800 l	CT 1200 1,200 l	TC 600 420 l	TC 850 580l	VMC 801 800l	VMC 1201 1,200l	CI 801 800l	CI 1201 1,200l

STEPHAN

SIZE REDUCTION – Cutter

MICROCUT (MC)

- Capacities up to 6,000 l/hours (stand alone setup)*
- Capacities up to 30,000 l/hours (inline setup)*
- Functions:
 - pre cutting
 - cutting
 - fine cutting
 - dispersing
 - emulsifying
 - homogenizing
- Main applications:
 - rework
 - meat emulsions
 - vegetable grinding
 - soups & sauces (in combination with Vacutherm)



STEPHAN

BATCH – Cooker & Multi Purpose

UNIVERSAL MACHINES (UM)

- Capacities up to 1,000 l/hour*
- From lab to industrial scale
- Functions:
 - direct/indirect heating up to 125 °C
 - Vacuum processing
 - Mixing, cutting and emulsifying
 - indirect cooling via double jacket
- Main applications:
 - dairy (processed cheese)
 - convenience food (purées, saucen)
 - confectionary (ganache)



MACHINES & MODULES

In-tank high- shear unit – Universal Machine (UM) and Combicut (TC)

CHARACTERISTICS

- Handling of fat blocks
- Discharge valve for low and medium viscous products
- Gravity discharging for high viscous products
- Variable shear forces by frequency- controlled drive and different types of working tools (types of knives: wave cut, sharp, blunt)
- Small sizes suitable for R&D purpose (UMSK 5 + 24)
- Suitable for all kind of plant-based cheese



UMS 5
2l Batch

UM 200
170l Batch

(PRE) CUTTING

(PRE) GRINDING

BLENDING

EMULSIFYING

DISPERSING

DIRECT HEATING

DE- AERATING

MACHINES & MODULES

BATCH SYSTEMS - Combitherm® (CT)

CHARACTERISTICS

Main applications:

- Spreadable cheese
- Fresh cheese preparations (all kinds)
- Handling of fat blocks up to 25 kg (CT)
- Discharge valve for low and medium viscous products
- Variable shear forces by frequency- controlled drive and different types of working tools
- Capable to incorporate powders/ Crystals



CT 401
Maybe soon ??

CT 801
800l Batch

CT 1201
1,200l Batch

(PRE) CUTTING

(PRE) GRINDING

BLENDING

EMULSIFYING

DISPERSING

DIRECT HEATING

DE- AERATING

MACHINES & MODULES

BATCH SYSTEMS - Vacutherm® (VMC)

CHARACTERISTICS

Main applications:

- Soups, Sauces, Hommos, Jams, spreads, cheese,...
- Raw material needs to be pumped, pre grinded, pieces with max. 20x20x20mm
- Discharge valve for discharging and re-circulation
- Variable process just for blending or either cutting via Micro Cut inline
- Capable to incorporate powders and liquids



VMC 401
400l Batch

VM 801
800l Batch

VMC 1201
1,200l Batch

(PRE) CUTTING

(PRE) GRINDING

BLENDING

EMULSIFYING

DISPERSING

DIRECT HEATING

DE- AERATING

MACHINES & MODULES

BATCH SYSTEMS – COOK-IT® (CI)

CHARACTERISTICS

Capacity:

- up to 2 batches/h
- up to 2,400 kg/h

Main applications:

- Block cheese
- Analogue mozzarella

ADVANTAGES

Tiltable bowl for high viscous products
(Bloc & imitation cheese)

NO stretching tank
needed if used for
production of analogue
mozzarella

Minimized product
residues after discharging



(PRE) CUTTING

(PRE) GRINDING

BLENDING

EMULSIFYING

DISPERSING

DIRECT HEATING

DE- AERATING



CI 401
400l Batch

CI 801
800l Batch

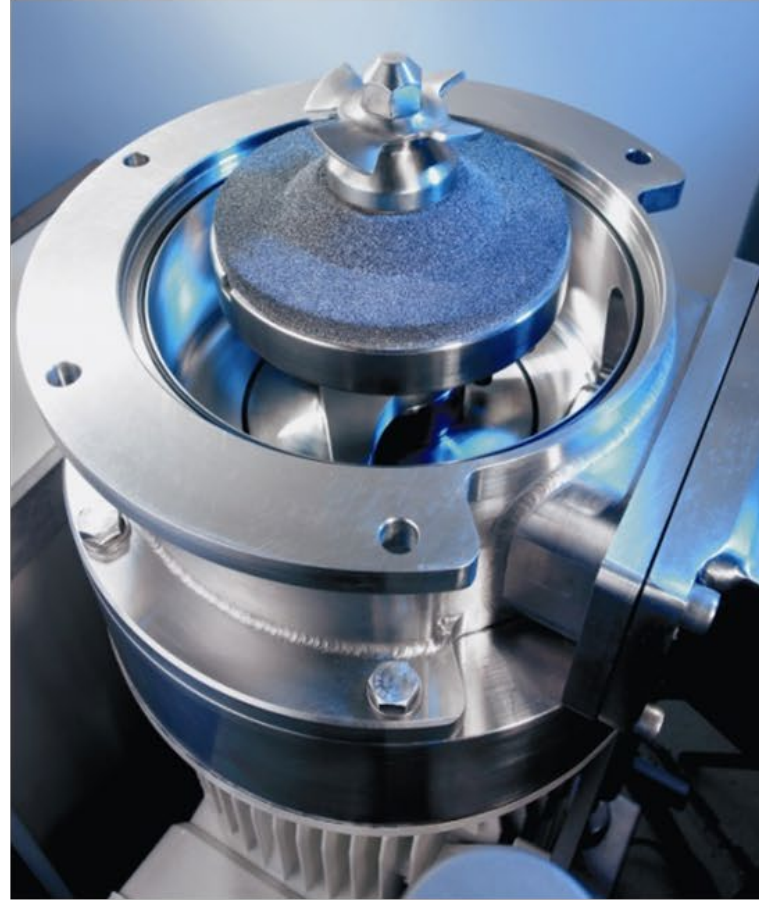
CI 1201
1,200l

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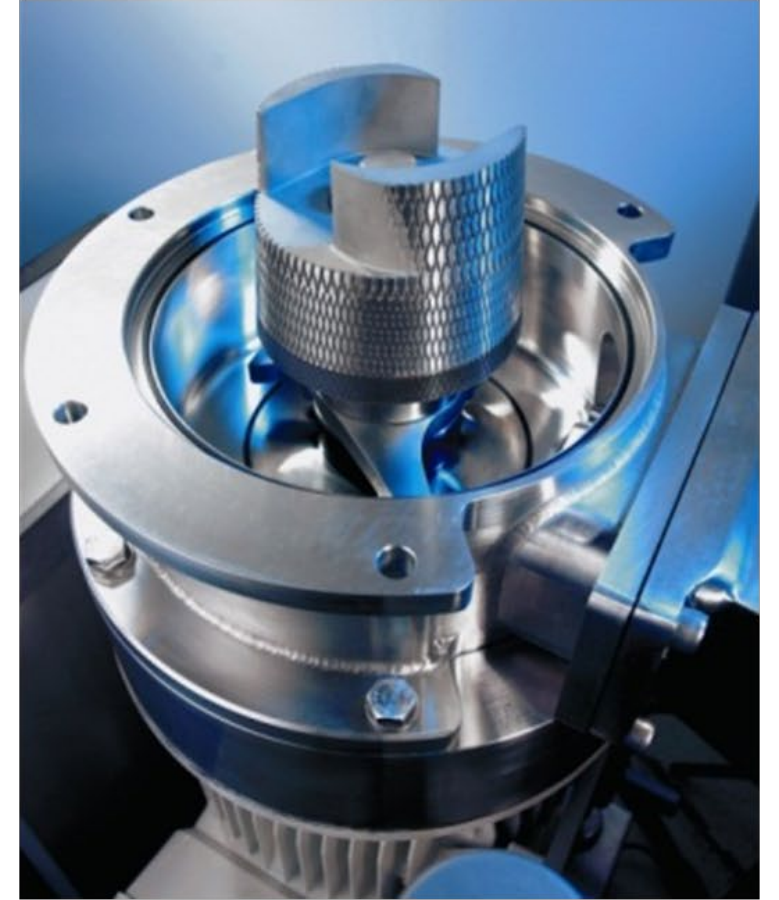
Modular and Exchangeable Design



Perforated disc mill ML

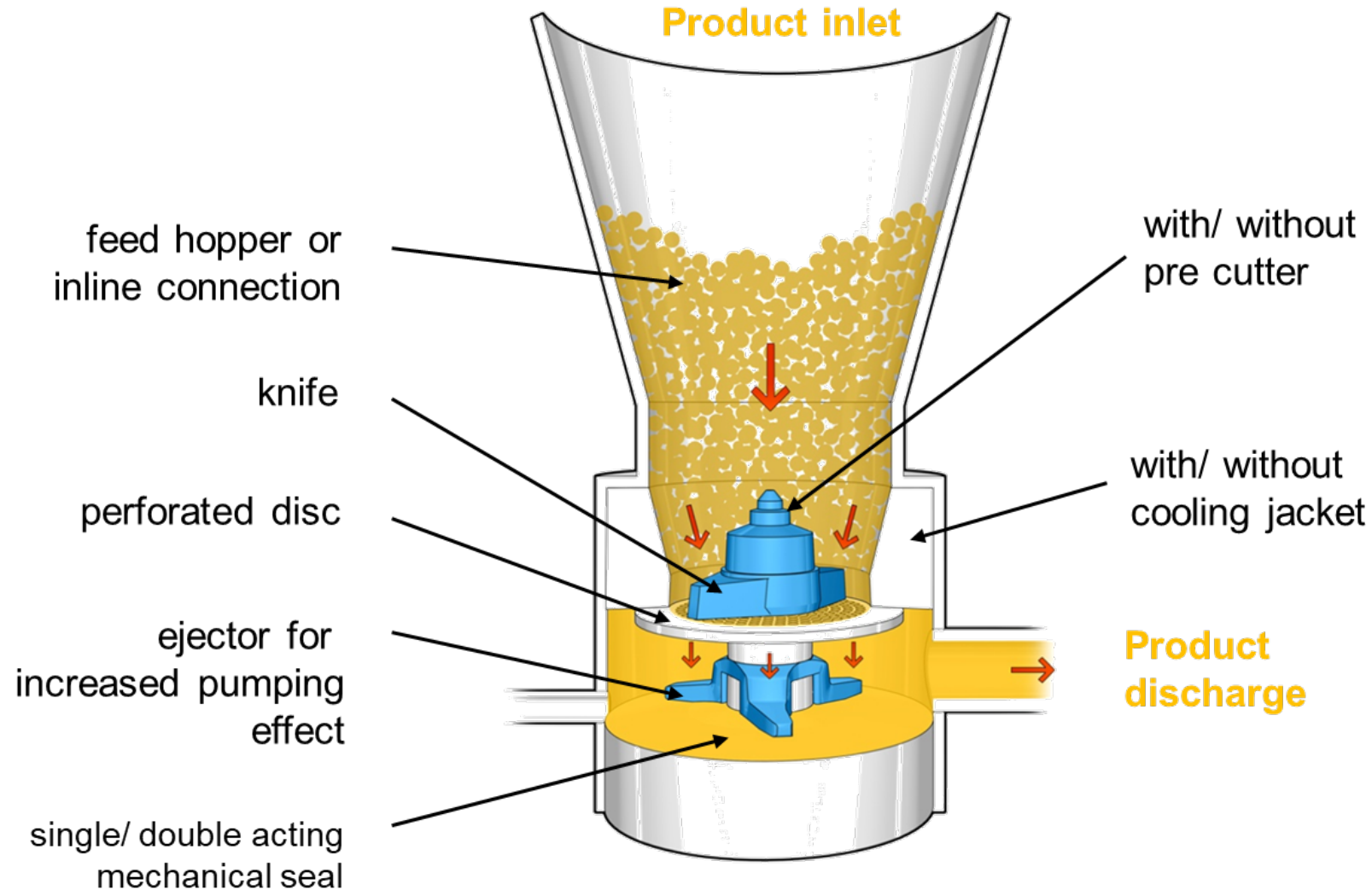


Corundum stone mill MK



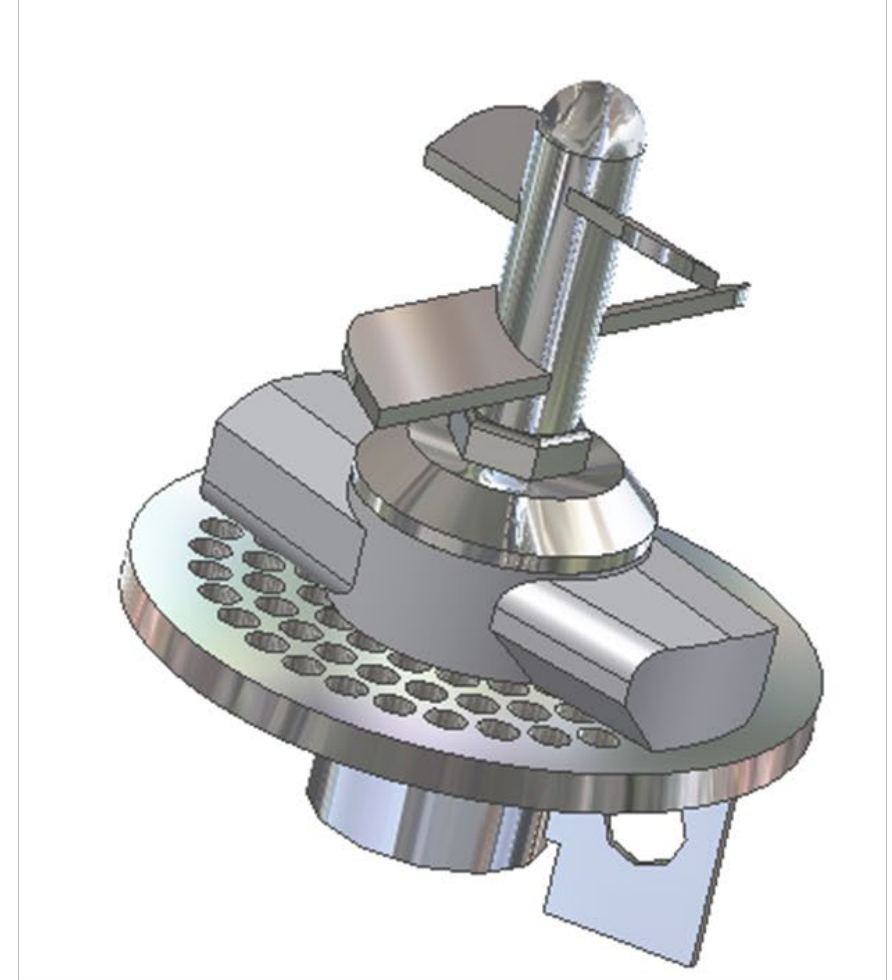
Toothed colloid mill MZ

PERFORATED DISC MILL ML



PERFORATED DISC MILL – ML

Grinding Tools



MILL DISC – MD

Replacement for ML

Advantages compared to ML:

- better particle size reduction
- lower manufacturing costs
- lower power consumption
- suitable for plant-based products
- suitable for products with higher concentrations
- upgrade ML → MD available



PERFORATED DISC MILL ML

Applications

Food

Meats, vegetables, fruits,
soja beans, fish paste,
baby-food, biscuits, waffle wastes



Cosmetics

Animal skins, crab shells,
plants, roots, Aloe Vera

TOOTHED COLLOID MILL – MZ

Grinding Tools



TOOTHED COLLOID MILL MZ

Applications

Food

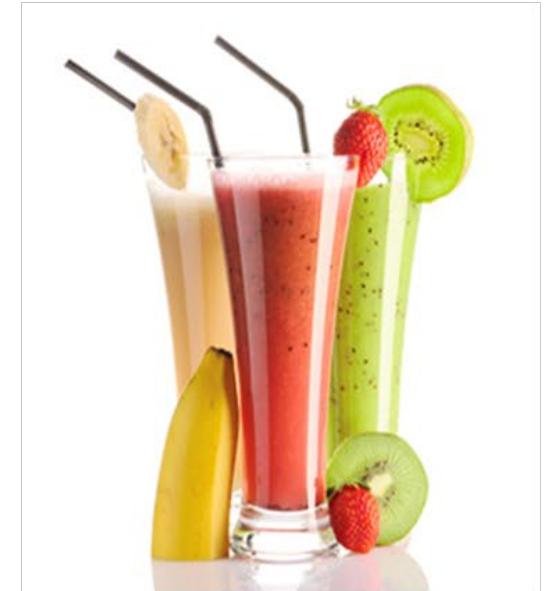
Meat pastes, vegetables, fruits, soja beans, baby food, fruit juices, biscuit fillings

Cosmetics

Emulsions, ointments, toothpaste, crab shells

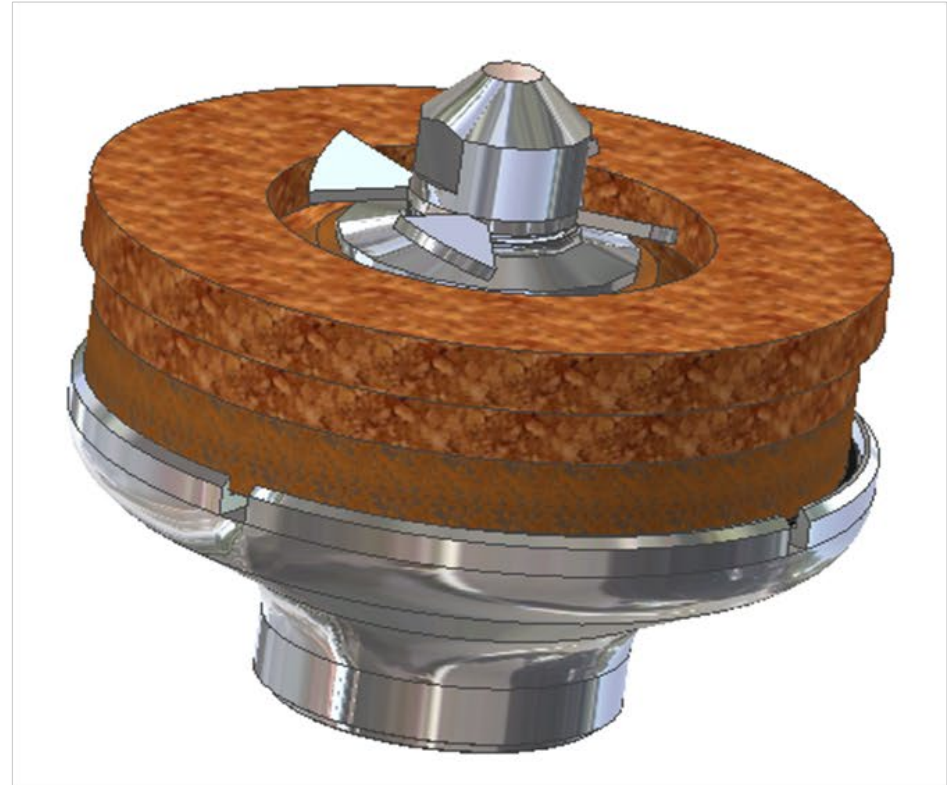
Pharmaceuticals

Emulsions, ointments, animal skins, pill coatings, veterinary products
plants (extracts)



STONE MILL – MK

Grinding Tools



Food

Mustard, sesame,
fruits, nut pastes, pastes
(herbs, fish, meat...)

Cosmetics

Lip stick masses,
pigment pastes, cremes

Pharmaceuticals

Animal tendons,
plant extracts

