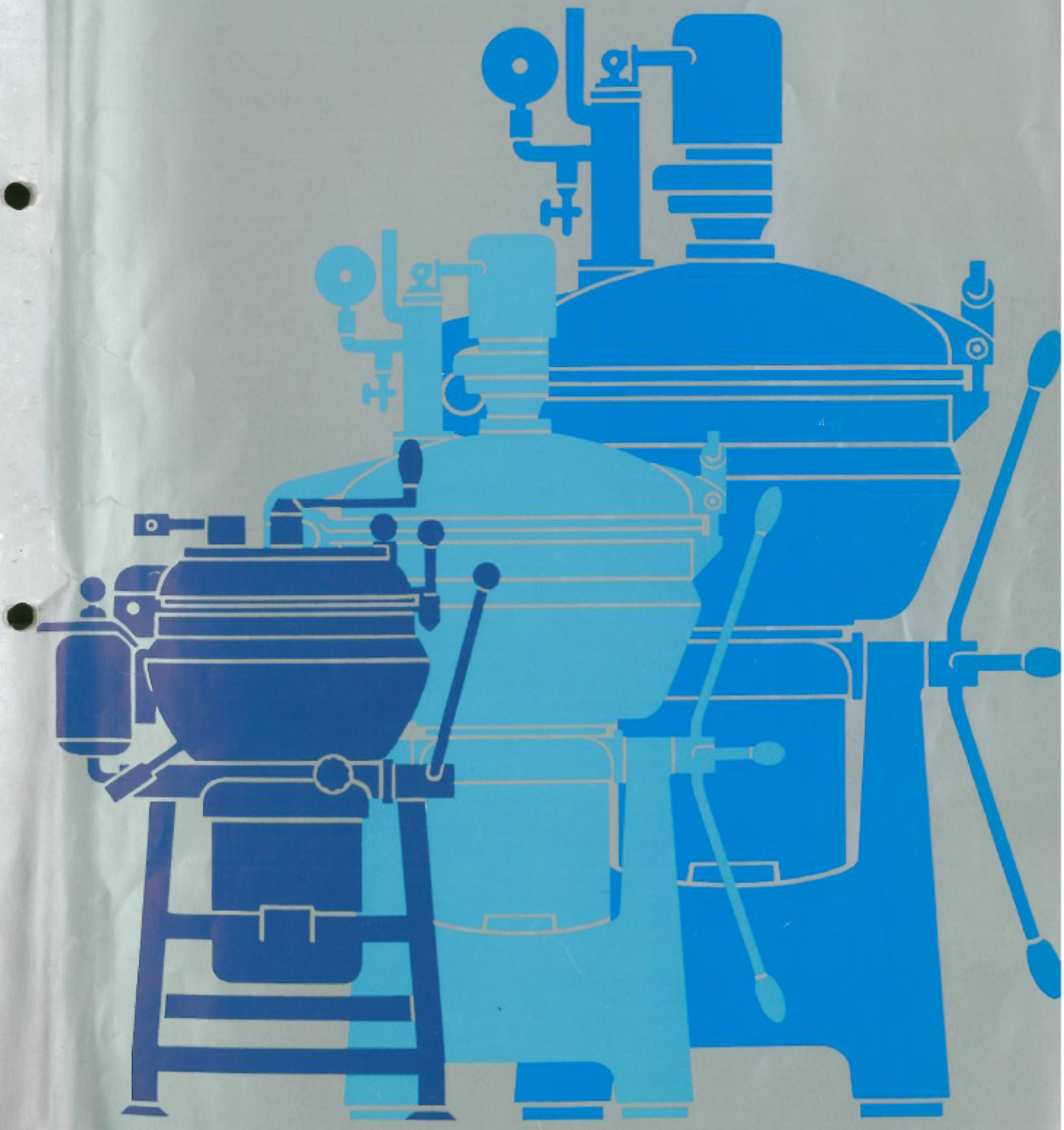
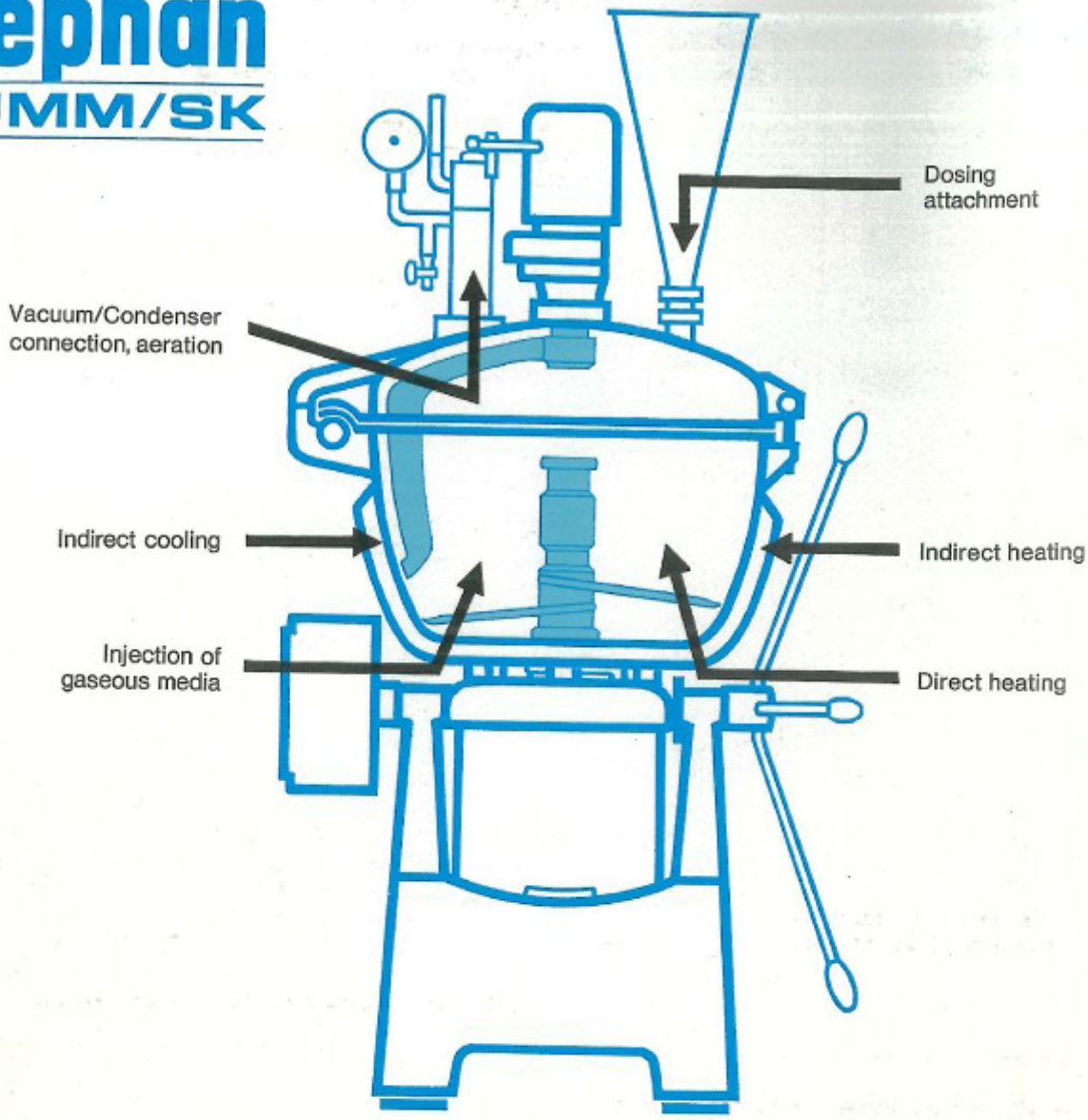
Stephan

UMM/SK



Stephan UMM/SK



General Description, Operating Principles

The bowl and its underslung motor, swivel on a supporting base and can be tilted and fixed in any position.

Bowl, lid, motor shaft and all processing inserts are made from stainless steel. An extension of the motor shaft protrudes into the bowl and carries the processing insert with its rigid cutters. With bowl and lid locked by means of quick-release safety clamps the machine is operational.

Rotating at a speed of either 1500 or 3000 r.p.m., the processing insert breaks up, reduces and thoroughly mixes the material in the bowl whether it be soft or hard, tough or brittle. The conveyor blade with scraper protruding into the bowl from the machine lid accelerates the process by propelling the material towards the rotating tools.

Vacuum operation is a standard feature of all SK machines and non-return steam valves are fitted to the bottom of the bowl for direct heating. A pressure resistant double jacket permits indirect heating and cooling.

Operation of the UMM/SK machine can be manual, semi-automatic or to pre-determined programmes by punch-card control.

Where required the following are some of the accessories which can be connected either to the inlet or outlet or integrated with the machine.

- Vacuum pump, complete with motor.
- Compressor, complete, for operating the pneumatic valves.
- Pneumatically operated bowl valve for connection to discharge pipe NW 65 in bottom of bowl (Standard).
- Dosing apertures in top of lid NW 65 – a max. of 3 apertures can be provided.
- Filler tube can be fitted to dosing aperture, capacity 15 litres, with manual or pneumatically operated slide valve.
- Steam station, individually adapted for moisture extraction, pressure control, purification and decontamination of steam under local conditions.
- Programme control, complete with 12 or 24 control tracks for automating operating sequences including loading and emptying of machine.
- Condenser outfit, complete, for drying out and thickening of products after pre-processing in the UMM/SK.

Stephan UMM/SK

Ideal machines for the dairy and allied industries

Products

1. Processed cheeses, spreading and slicing types
2. Cooked cheeses
3. Quarg products with herbs or fruit
4. Fresh cheese preparations
5. Cream cheese spreads (reduced calorie creams)
6. Dessert creams
7. Blancmanges
8. Mayonnaise with reduced oil content, salad creams, ketchups etc.
9. Herbal butter, full or reduced fat content
10. Ice cream compounds
11. Fruit yoghourts, Kefirs, sour cream
12. Casein preparations
13. Milk shake concentrates
14. Recombination compounds
15. Baby foods

Processes

Reducing
Mixing
Kneading
Dressing
Evacuating
Thermalizing
Melting
Pasteurizing
Sterilizing
Injecting
Dosing
Emulsifying
Demoisturizing, Condensing
Direct and indirect cooling

all in one machine – in one operation!

Composition of recipes is individually variable. The products listed opposite are based on milk protein or milk fat.

Throughput kg/h

The quantities shown are minimum values. The actual capacity of a machine will depend on the processing cycle as well as on the type and consistency of the rawmaterials used.

Type	Product number according to the above list														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
UMM/SK 25	80	150	150	150	150	150	150	150	150	150	150	80	150	80	80
UMM/SK 40 E	120	300	300	300	300	300	300	300	300	300	300	120	300	120	120
UMM/SK 40 E GNi-Pilot	120	300	300	300	300	300	300	300	300	300	300	120	300	120	120
UMM/SK 80 E	450	600	600	600	600	600	600	600	600	600	600	450	600	450	450
UMM/SK 130 E	++	++	1000	1000	1000	1000	1000	1000	1000	1000	1000	++	1000	++	++

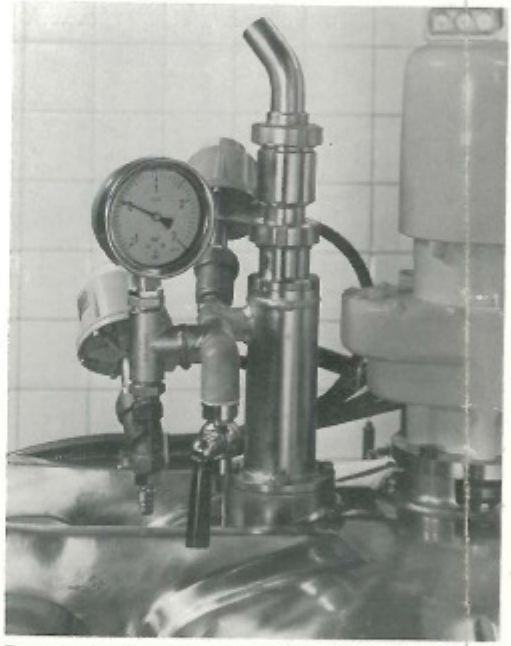
++ The UMM/SK 130 E machine has been specifically designed for processing sour milk products.

Console mounted control panel with operating push buttons and programme card feeder, water dosing and temperature indicator

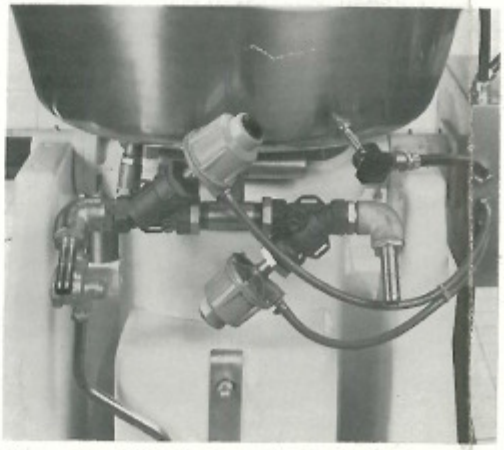
UMM/SK 25

UMM/SK 40 E – 130 E

Dosing funnel with level gauge and pneumatically operated slide valve on dosing aperture NW 65. With union and union nut.



Pneumatically operated vacuum and ventilation valve, relief valve and mano-vacuummeter.



Connections for steam and water with pneumatically operated valves.
Sensor for electronic temperature measurement.

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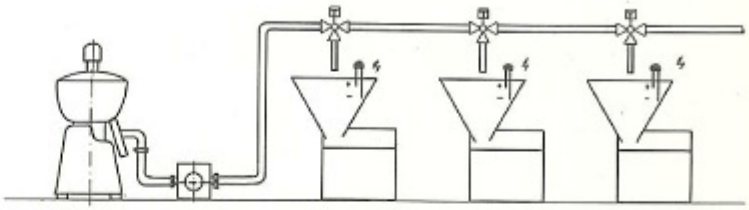
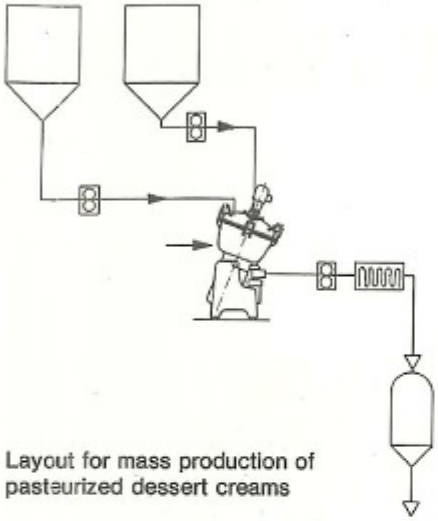
UMM/SK

Project Examples

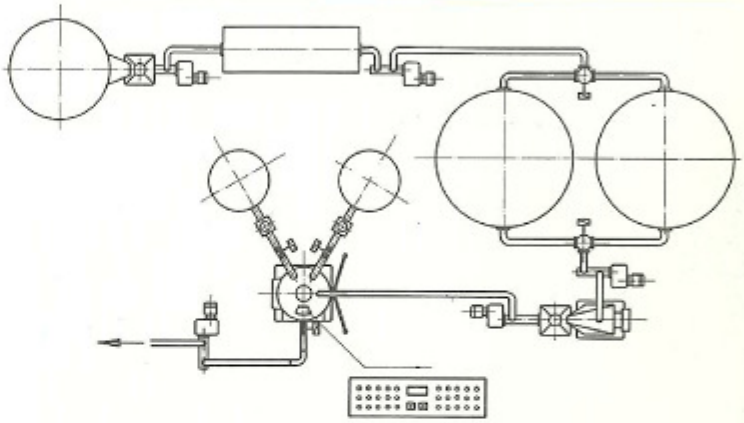
The Stephan Project Department can prepare scaled and realistic recommendations for installations, based on practical requirements. Manually fed and operated plants as well as fully automatic mass production lines can be individually designed by Stephan's engineers, and commissioned by Stephan's technicians and production specialists.



Production of processed cheese in blocks

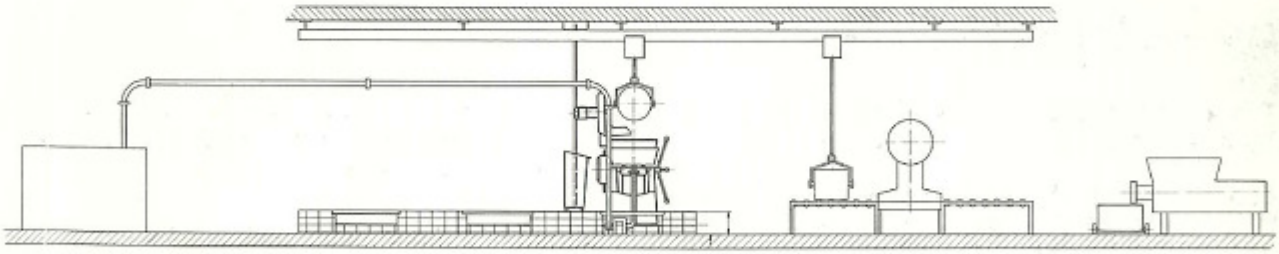


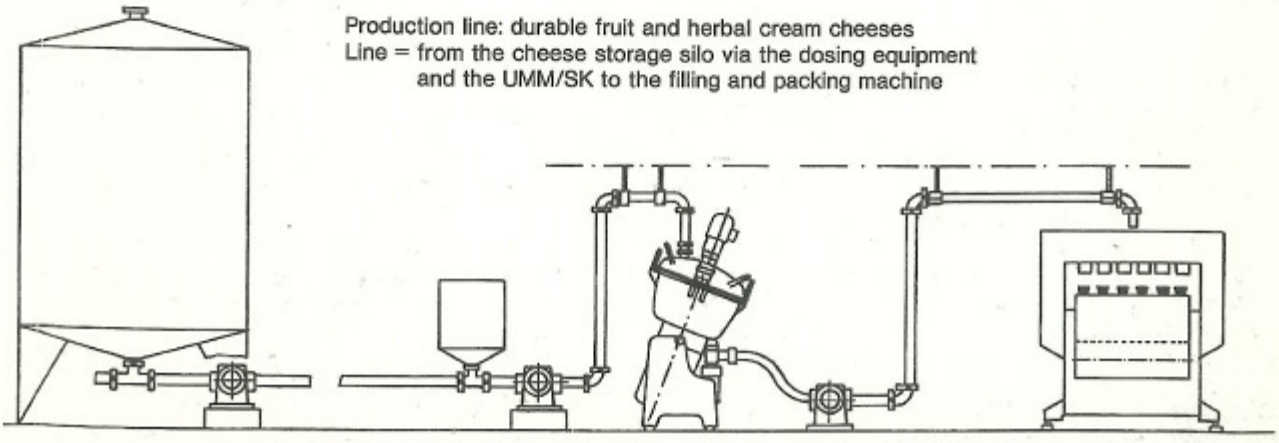
Layout for mass production of pasteurized dessert creams



Installation for the production and thermalization of quarg products

Detail of a production line – processed cream cheeses –





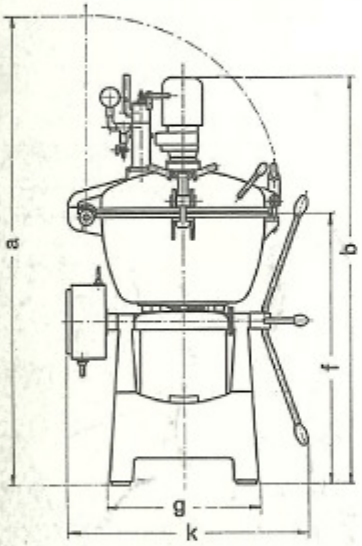
Production line: durable fruit and herbal cream cheeses
Line = from the cheese storage silo via the dosing equipment and the UMM/SK to the filling and packing machine

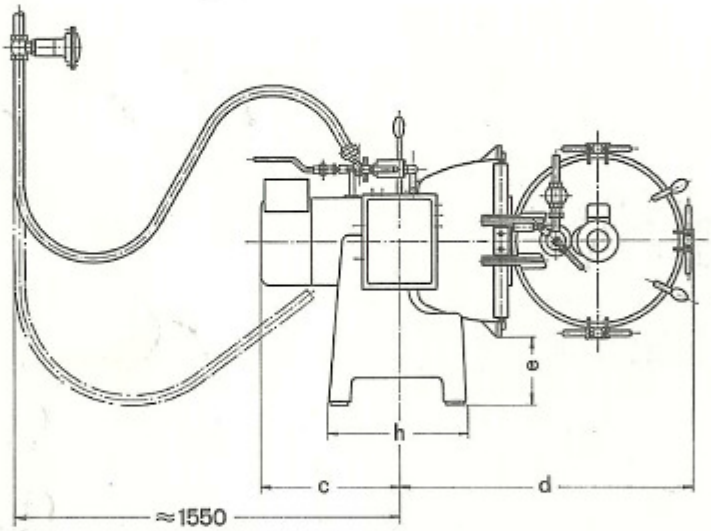
Technical Data

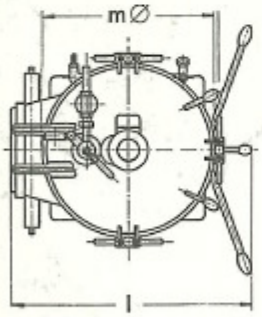
		UMM/SK 25	UMM/SK 40 E	UMM/SK 40 E GNi-Pilot	UMM/SK 80 E	UMM/SK 130 E
Bowl capacity	approx. l	25	40	40	80	130
Width x Depth x Height without control panel	approx. cm	80x60x120	90x65x130	90x65x130	100x105x165	110x110x175
Weight: Machine net/gross*	approx. kg	130/200	220/360	230/360	590/790	780/980
Control panel net/gross*	approx. kg			70/105	115/160	115/160
Case measurements*: Machine	approx. cm	100x80x130	140x110x150	140x110x150	170x130x130	180x150x140
Contr. panel	approx. cm			100x90x60	150x90x60	150x90x60
Hourly output, end product, minimum	approx. kg	80	120	120	450	900
Motor output 1500/3000 r.p.m.	approx. HP	4,5/5,5	5,5/7,5	5,5/7,5	20/25	25/30
Motor output 750/1500 r.p.m.	approx. HP		7,5/10,0	7,5/10,0	13,6/23	
Motor output, mixing baffle	approx. HP		0,75	0,75	1,5	1,5
Connected fuses 380/220 V	Amp. (delayed action)	20/35	20/50	25/50	80/125	100/160
Steam connection (max. permissible pressure 4.0 atü)		½"	½"	½"	¾"	¾"
Steam consumption/h						
at approximately 3.5 atü	approx. kg	30	30	30	120	150
at approximately 1.5 atü	approx. kg	20	20	20	60	80
Max. temperatures by direct heating	approx. °C	95	95	130	130	95
Vacuum pump with motor	kW/HP	0,55/0,75	0,55/0,75	0,55/0,75	1,1/1,5	1,1/1,5
Volume of aspired air	m³/h	4,4	4,4	4,4	13	13
Compressor motor output	approx. HP			0,5	0,5	0,5
Max. pressure	approx. atü			10	10	10
Aspired volume	approx. l/min			60	60	60

* ready for shipment

Subject to amendments without notice







Dimensions in mm – Subject to variations without notice

Type	a	b	c	d	e	f	g	h	k	l	m ø
UMM/SK 25	1400	1180	1190	810	380	900	550	530	800	920	485
UMM/SK 40 E	1540	1300	1350	910	320	930	530	520	850	1000	550
UMM/SK 40 E GNi-Pilot	1540	1300	1350	910	320	930	530	520	850	1000	550
UMM/SK 80 E	1900	1610	1780	1205	275	1075	616	580	1000	1450	710
UMM/SK 130 E	2100	1780	1930	1360	380	1240	800	740	1100	1540	800

Please address your inquiries to:

Stephan

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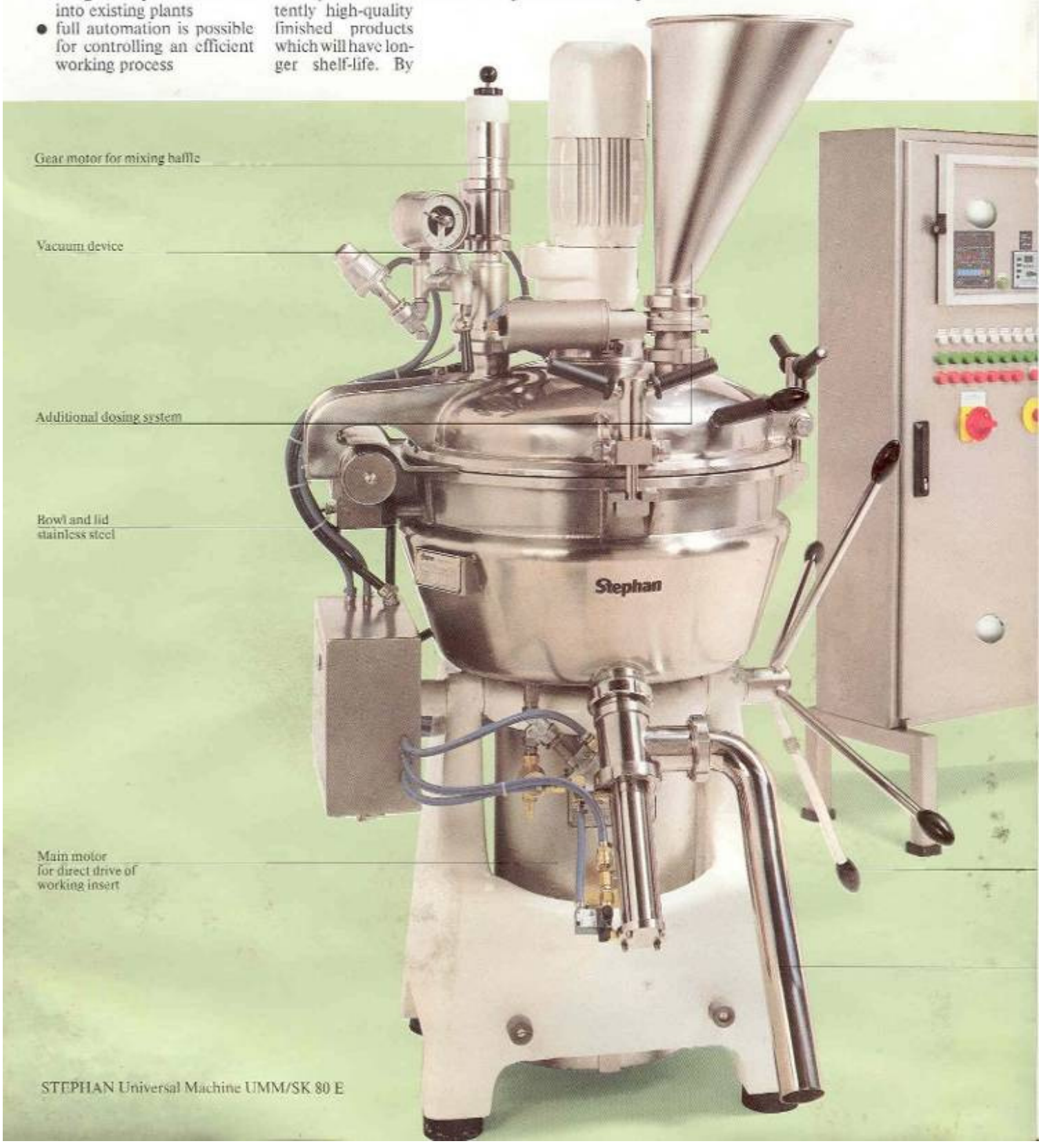
STEPHAN Universal Machine: Model UMM/SK

Ideal for dairy, cheese and related industries

STEPHAN SK systems process foods in many different ways. The design features listed below show total engineering:

- practical plant-proven design – may be retrofitted into existing plants
- full automation is possible for controlling an efficient working process
- highest standard of operating safety
- low maintenance and low operating costs
- easy and quick to clean

The STEPHAN UMM/SK Machine ideally suits the low-cost production of consistently high-quality finished products which will have longer shelf-life. By the combination of all processing stages into one machine and in one programmed cycle, the STEPHAN UMM/SK completes the processing in a very short time and reduces the number of product transfer points in the total process. This theory applies to a wide variety of products:
baby food, quark (white curd), cream cheese, mayonnaises, pudding desserts, processed cheeses, spreadable cheeses, emulsified dressings, cheese-based sauces.



STEPHAN Universal Machine UMM/SK 80 E

The STEPHAN SK Machine is unlimited in possible applications. The processes that can be automated into one automatic processing sequence are:

size-reduction, mixing, blending, cooking, sterilizing, pasteurizing, vaccum-processing, cooling and demoisturizing with vacuum/condenser cooling, emulsifying, indirect heating or cooling (with double-jacket)

Together with the standard vacuum system, STEPHAN can provide the capability to exchange gases in the processing chamber and fully program this feature into the automatic sequence.

STEPHAN TECHNOLOGY

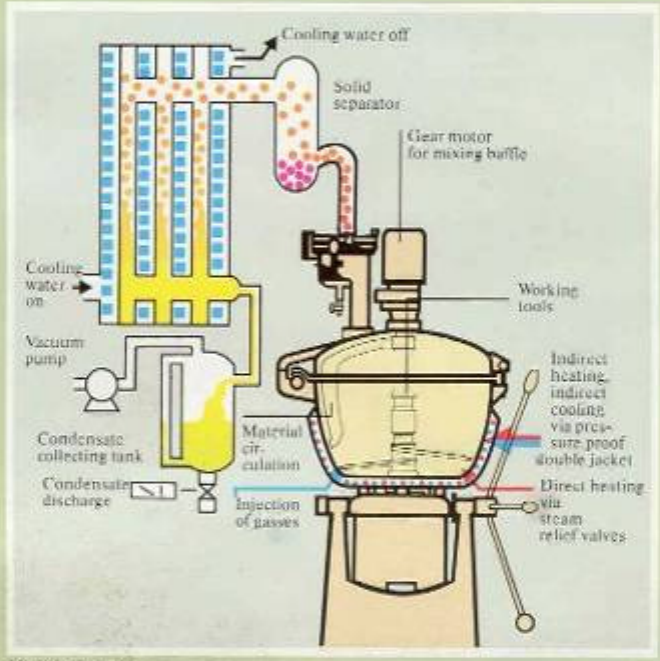
Mechanical Processing. The motor is flange-mounted to the bottom of the bowl. For direct drive design the motor shaft extends through the bottom of the bowl. Normally the motor speeds are 1500/3000 for 50 Hz (1750/3500 for 60 Hz). The contour of the bowl has been developed over years of application to provide a predictable yet complete, mixing flow pattern. The stainless steel shaft on which the knives are fastened slips over the extended motorshaft and rotates with the same motor speed. Since the knives are fixed at a pre-determined pitch, they will generate a vortex of the materials in the bowl. This vortex is a defined circulation in the bowl which brings the product into the knife-contact area. In this way, the materials are consistently processed.

Further Processing.

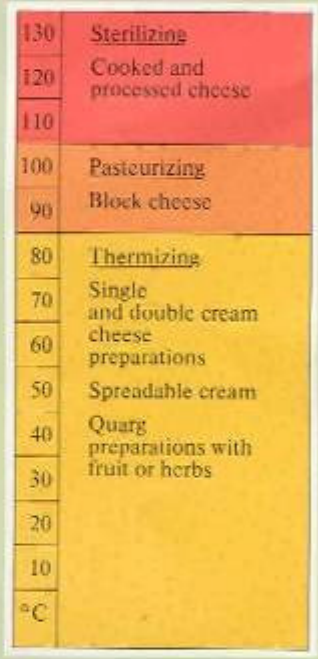
In seconds this mechanical processing repeats itself. The mixing baffle completes the blending by folding any tough or sticky materials into the center away from the inside surface of the bowl.

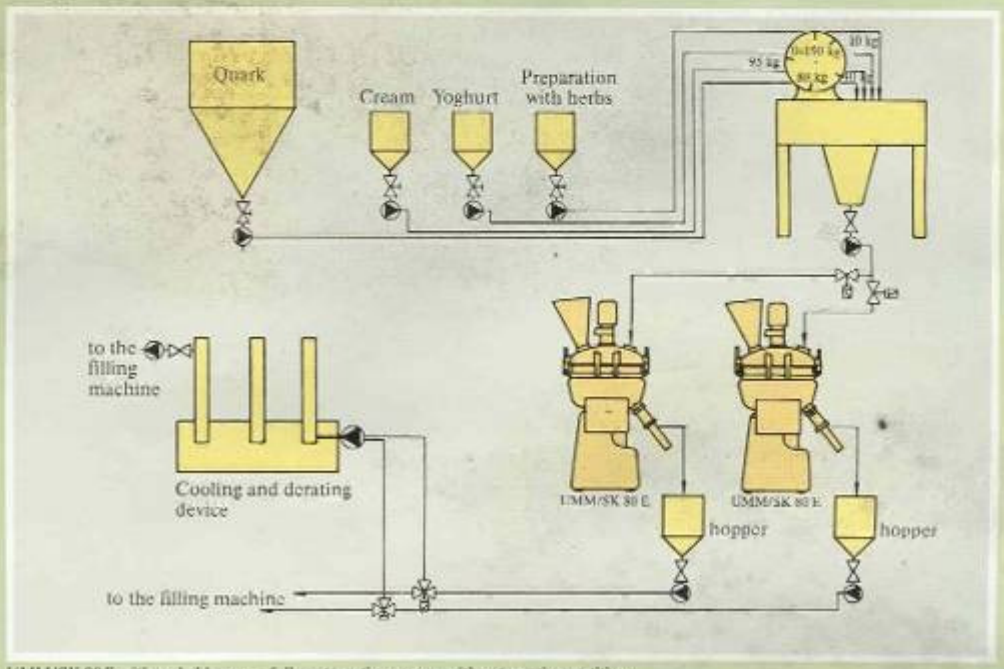
Vacuum processing can be used during any point in the process, but normally vacuum is drawn just prior to the heating cycle.

Direct heating of the materials being processed can be done simultaneously with the mechanical processing. Culinary-grade steam is injected directly into the product. The steam injection nozzles are positioned on the bottom of the bowl, and are designed to inject steam in a 360-degree pattern for uniform distribution. These injection nozzles are also designed to prevent "backflow" of product.



Mixing principle





UMM/SK 80 E with scaled hopper - fully automatic program with automatic repetition.

Stephan
Food Processing Technology

Wide Applications
Built to operate
in a wet environment

The heat transfer into the materials is immediate. The mechanical flow guarantees uniform energy distribution. The condensate of the steam can be calculated as an ingredient in the formula. When the desired temperature is reached, the steam is shut off. This entire heat-treatment process can be fully programmed for reliable reproduction.

Production of white cheese preparations with herbs. Fresh white cheese, cream, yoghurt, herbs or fruit preparations are scaled and then charged into the SK bowl. Depending on the level of automation desired, these ingredients can be scaled and loaded through valves. If dry powders or liquids are to be added at a subsequent stage in the program, this is done generally by the use of vacuum.

Depending on the raw materials, the initial mixing can be done in 30 sec. using 875 or 1750 rpm. With the bowl already under vacuum, the culinary-grade steam is injected directly into the bowl contents until a pre-set temperature is reached. To reach 75 degree C or 167 degree F requires 2-3 min. with a dynamic steam pressure of 45 to 50 psi (3 bar). First the vacuum then the steam injection are turned off by the preset controls on the temperature indicator. If this temperature is held for 60 sec, better bacteriological stability and rheological properties are reached. After the processing is completed, the hot product is discharged from the SK through a pneumatically operated discharge valve. The product can then be pumped directly to a "hot-fill" packaging system - maintaining a minimum product temperature until it is filled. Or the product can be pumped through cooling equipment which could also whip the chilled product before packaging.

While the product is being pumped to the filler, a new

Stephan
Food Processing Technology

Compact Construction
Ideal Engineering
Leading Technology

batch of ingredients can be charged into the SK. A continuous supply of product can be fed to the filling machine through the sequencing of 2 or 3 UMM/SK machines. If even greater production is needed, a STEPHAN Combicut TC/SK should be considered.

The shelf-life of the end-product is enhanced because the STEPHAN technology introduces the steam spray at 290 degree F to all the product uniformly and instantly. This shock treatment does not require temperature penetration time. However, the product can be held at the elevated temperature for a sufficient time to effectively kill the bacteria.

Thermizing: heating up to approx. 80 °C (176 °F)
- quark, low fat with added cream content
- quark preparations with fruit or herbs
- spreadable cream
- cream cheese preparations
- low fat milk products (low calorie creams)

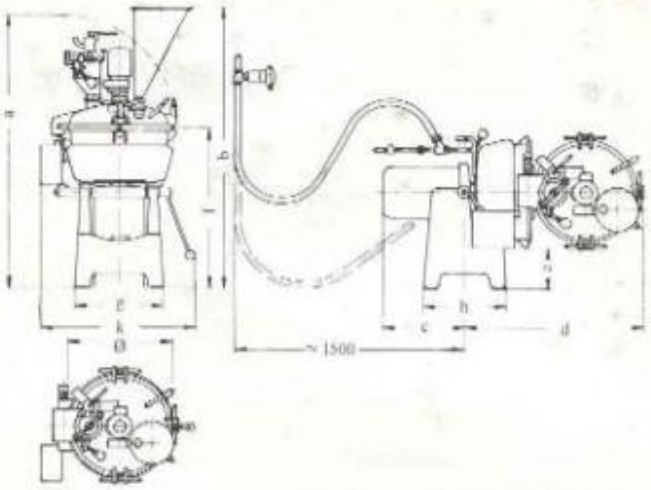
Pasteurizing: heating up to approx. 100 °C (212 °F)
- single and double cream cheese preparations
- dips
- cheese spread and processed cheese
- block cheese and imitation cheese
- cheese slices
- re-cycling products
- caseinate production, preparing and pasteurising of wet casein in connection with special salts – up to 50 % fat in dry matters possible
- creamy desserts on the basis of either quark, milk powder or water
- butter blending in all variations
- preparation of semi-finished products, mixing of low fat milk powder with 20 % butter fat content. The end product remains fluid.

Sterilizing: heating up to 127 °C (260 °F)
- cooked cheese
- processed cheese
- baby food
- soups
- sauces

STEPHAN Universal Machines: Model UMM/SK

Technical Data		UM 25 E GNi-Pilot	UM 44 E GNi-Pilot	UMM/SK 80 E-II	UMM/SK 130 E-II
Bowl contents	l	25	45	80	115
Batch (max.)	l	17	30	53	86
Batch time	min.	approx. 6–10	approx. 6–10	approx. 6–10	approx. 6–10
Electrical connection:					
at 1500/3000 rpm	kW	3,3/4,0	4/5,5	18,5/15	22/27
at 750/1500 rpm	kW	2,2/3,2	3,3/4,5	17/10	12/20
Fuses 380 V		time delayed			time delayed
at 1500/3000 rpm	A	approx. 20	25	80	approx. 100
Fuses 220 V		time delayed			time delayed
at 1500/3000 rpm	A	approx. 25	35	125	approx. 160
Steam req./batch	kg	approx. 10	approx. 17	approx. 20	approx. 25
Net weight	kg	330	300	590	800
Weight (control panel)	kg	70	70	115	115
Max. steam pressure allowed in machine	bar	4	4	4	4
Max. steam pressure allowed in bowl	bar pü	1,5 (≙127 °C)	1,5 (≙127 °C)	1,5 (≙127 °C)	1,5 (≙127 °C)
Max. working pressure allowed in double jacket	bar pü	2 (≙132 °C)	2 (≙132 °C)	2 (≙132 °C)	2 (≙132 °C)

Type	a	b	c	d	e	f	g	h	k	Ø I
UM 25 E-GNi-Pilot	1420	1440	470	820	320	910	560	510	805	460
UM 44 E GNi Pilot	1500	1530	520	850	310	912	575	525	1400	532
UMM/SK 80 E-II	1930	1830	575	1250	360	1120	670	580	1050	710
UMM/SK 130 E-II	2100	1830	575	1360	380	1240	800	710	1100	800



STEPHAN reserves the right to make minor technical changes without notice.

Drawing does not show every technical detail.

Also ideal for prepared food industry

STEPHAN can offer interesting solutions to processing problems.

A STEPHAN Universal machine UMM/SK can also be used in any number of ways in the delicatessen industry.

Mayonnaise, sauces, salad dressings or ketchups,
using cream, yoghurt, vegetable oil, whole eggs, powdered egg, milk protein, spices and other ingredients.

Sauces: either ketchup-based or mayonnaise-based, pasteurized.

As we did for the dairy industry, STEPHAN has been building machines and equipment for the meat trade, the meat processing industry, the fish industry, for bakeries, confectioneries, for the bakery industry as well as for the sweets industry, catering and commissary kitchens, and the general food industry for more than 30 years.

Research, development and advances engineering have helped STEPHAN to gain international recognition.

STEPHAN
Universal machines
UM 25 to UM 130 E
for kneading, stirring, mixing, grating, chopping, homogenising, emulsifying, slow blending.
For batch sizes of up to 90 kg.
Capacity up to 900 kg/h.

STEPHAN Vacuum Mixers
VM 100 to VM 1500
for slow running mixing processes under vacuum.
For batch sizes of up to 1,000 kg.

STEPHAN Combicut TC
for combined processes.
For batch sizes of 100 kg to 600 kg.
Capacity up to 6,000 kg/h.

STEPHAN Service
individual and
reliable