

Your product is our only concern



Linear cup fillers



GRUNWALD® 
Dosing · Filling · Packing



Make your vision a reality – step ahead with GRUNWALD



Pure technology is available from many companies but not the experience behind it. GRUNWALD have been a reliable partner in dosing, filling and packing for several decades and are known as "The Allrounder from the Allgäu".

From our origins in the Allgäu region of Southern Germany we have become distinctive and successful. Today our filling machinery is used all over the world by the dairy industry, food producing industry, delicatessen industry, meat processing

industry, ready-meal producers and the cosmetics industry.

We do everything we can to help you give your product the best reception in the marketplace.

Many years experience with a large variety of products, container shapes and lid types makes it possible to develop innovative, individual, flexible and reliable machinery. This guarantees production reliability,

easy operation and changeover, giving the maximum speed and flexibility for your products.

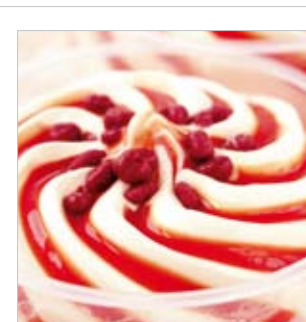
Flexibility, speed, value for money, short delivery times and prompt, reliable customer service result in long-lasting partnerships with all of our customers. Not only are these the traditional Allgäu values but they are also the secret of our success.

Perfect presentation and mouth-watering taste will make your product a bestseller.

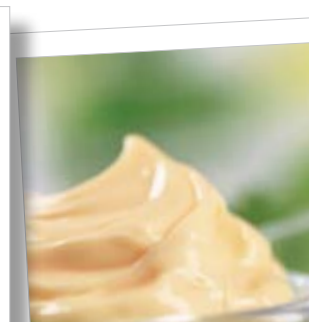
We understand this and we do all we can to help you achieve it.

It is a fact that to keep your product as delicious as it was when it was made, the appropriate technology is required. This is one of our key strengths.

Different designs of filler guarantee weight-accurate, non-drip filling and thus the best possible presentation of your products.



YOGHURT, DAIRY PRODUCTS, SINGLE OR MULTIPLE FLAVOURS, FILLED IN LAYERS OR IN A SWIRL PATTERN



BUTTER, MARGARINE, MAYONNAISE, DIPS, SAUCES



JAM, SPREADS, FRUIT PUREE



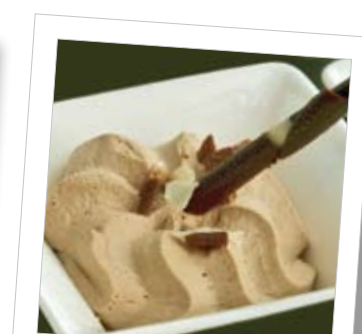
CREAM CHEESE, CURD



FRESHLY-PREPARED SALADS, NON-PUMPABLE READY-MEALS



DELICATESSEN SALADS



DESSERTS, SWEETS OF ALL KINDS

FOODLINER 3.000 and 6.000

Our most successful linear machines

Modern, durable technology combines flexibility with good value for money.

There are 4 **FOODLINER** models available. They mainly differ in the production speed.

Model choice is based on the following criteria

- number of lanes
- cup size
- alignment of the cups (longitudinal or lateral direction)
- hygiene standard required
- speed required

FOODLINER 3.000

Width of the machine: 900 mm
1- to 3-lane versions
Approximately 3,600 – 10,800 cups/h
Dosing range: 20 – 1,700 ml



FOODLINER 3.000

2-lane machine with product hopper including chute for feeding the products using a bin lift system

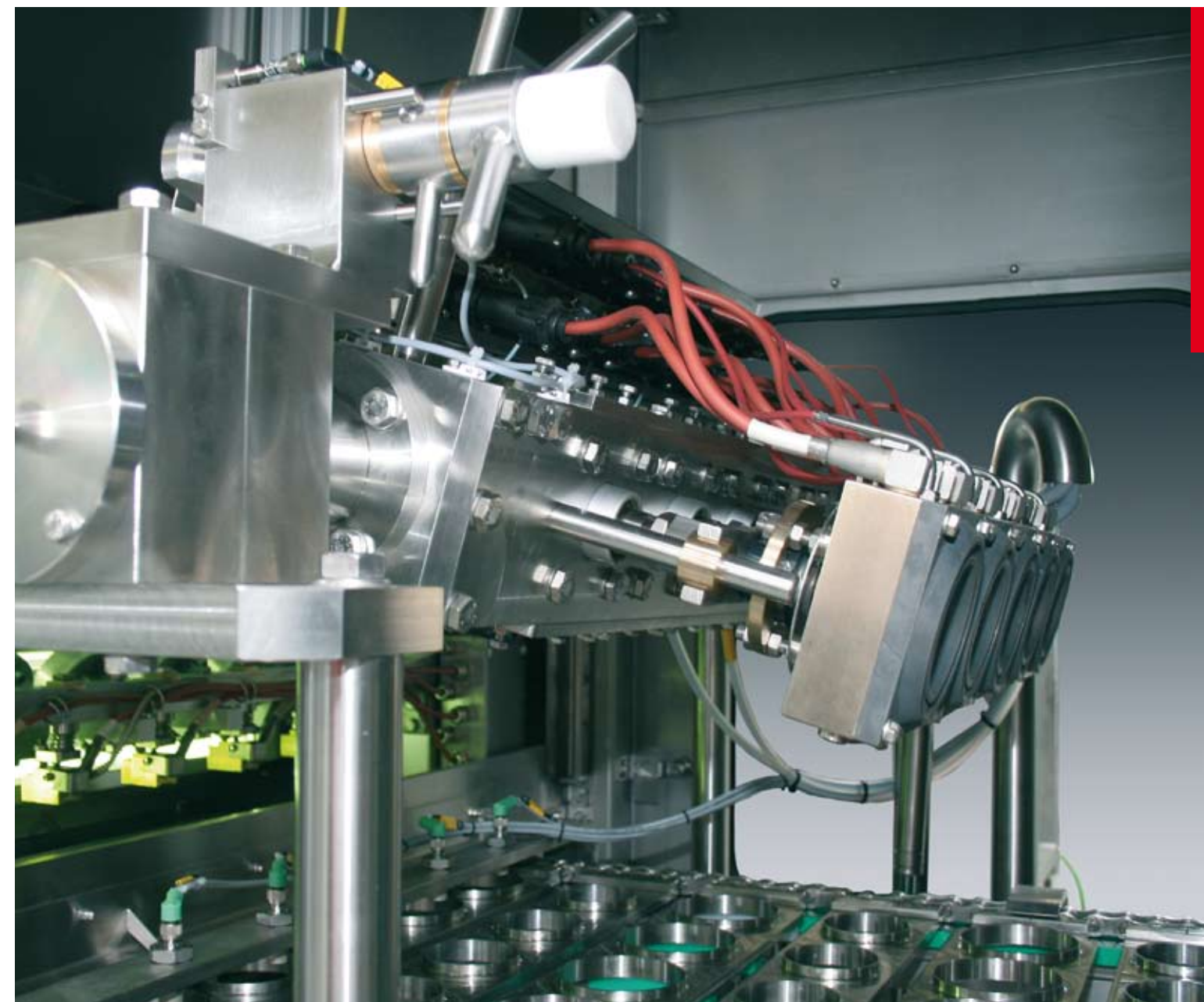
FOODLINER 6.000

Width of the machine: 1,380 mm
2- to 6-lane versions
Approximately 7,200 – 21,600 cups/h
Dosing range: 20 – 1,700 ml



FOODLINER 6.000

4-lane machine with low level cup storage system giving extended storage time at an ergonomic loading height



Sealing station

Showing optional pivoted design giving easy maintenance and cleaning of the sealing plates.
The sealing station can be driven by a toggle-press mechanism to give high-speed, low-noise operation if required.



FOODLINER 6.000

3-lane machine with extended curved magazine rods giving increased packing material storage time

FOODLINER 12.000 and 20.000

Our high-performance linear machines

Highly successful linear machines which combine robust construction with versatile operating stations.

The main feature of the **FOODLINER** is its robust drive design which offers the maximum flexibility by using a combination of servo and mechanical drives.

Applications:

- from portion packs up to buckets
- for all food products, cleaning agents, cosmetics or similar products
- can be combined with different dosing systems and open spaces for manual handfill sections

FOODLINER 12.000

Width of the machine: 1,540 mm

3- to 8-lane versions

Approximately 10,800 – 28,800 cups/h

Dosing range: 20 – 1,700 ml



FOODLINER 12.000

6-lane machine with double advance feed for two different cup sizes incorporating a flexible integrated packer which can handle both container sizes

FOODLINER 20.000

Width of the machine: 1,650 mm

4- to 2 x 10-lane versions

Approximately 14,400 – 50,000 cups/h

Dosing range: 20 – 1,700 ml



FOODLINER 20.000

5-lane machine hygienic version with laminar cabin and EASYCLEAN piston filler (with EHEDG certificate)



Cup sterilisation

using UV(C) light high-pressure radiators



FOODLINER 12.000

8-lane machine with hydraulic sealing drive for aluminium portion cups which are suitable for being sterilised, and double advance feed for two different cup sizes. Speed up to 24,000 cups/h

FOODLINER UC

Guaranteed for hygiene

The model FOODLINER UC is the ultra-clean linear machine from GRUNWALD.

The ultra-clean **FOODLINER UC** is the hygienic further development of the standard **FOODLINER** machine. This flexible linear machine was designed for the dairy industry with single or double advance feed so that it can handle different container sizes efficiently.

Packing materials are sterilised using a mixture of steam and H₂O₂ (hydrogen peroxide), and in combination with EHEDG certified CIP/SIP fillers a longer shelf life is achieved.

FOODLINER 15.000 UC

Width of the machine: 1,380 mm

4- to 6-lane versions

Approximately 10,000 – 15,000 cups/h

Dosing range: 20 – 1,700 ml



FOODLINER 15.000 UC

5-lane machine
with double advance feed for round cups Ø 95 mm and Ø 75 mm
allowing format changeover times of less than 15 minutes

FOODLINER 30.000 UC

Width of the machine: 1,650 mm

6- to 10-lane versions

Approximately 25,000 cups/h

Dosing range: 20 – 1,700 ml



FOODLINER 30.000 UC

8-lane machine
with pre-filler and main filler for layered dairy products as well as with external electrical cabinet and windows in the drive area to assist preventive maintenance



Seal lid sterilisation

using UV(C) light high-pressure radiators. The picture also shows a cup transport with double advance feed which gives quick format changes



FLEXLINER UC

4-lane machine
with packing material sterilisation and automatic machine cleaning



FLEXLINER SP

Our flexible machine

A versatile linear machine which features great flexibility and high production speeds.

With the **FLEXLINER SP** GRUNWALD can meet the quickly changing market demands on products and packing materials.

The cup transport system is designed in such a way that it is independent of the cup shape. Cups are held by two specially shaped transport rails during the machine index. These transport rails are driven by two separate pairs of chains which are themselves driven by two servo-motors.

This transport system gives a rapid format changeover without changing the transport rails.

Due to the flexible cup transport and the simple integration of various dosing systems, the filling of products in the full viscosity range in many different container shapes is possible.

The low, narrow design gives excellent access and ergonomic operation. Therefore this machine is especially suited for the integration of handfill sections.

FLEXLINER SP

Width of the machine 1,150 mm
1- to 3-lane versions
Approximately 2,000 – 6,300 cups/h



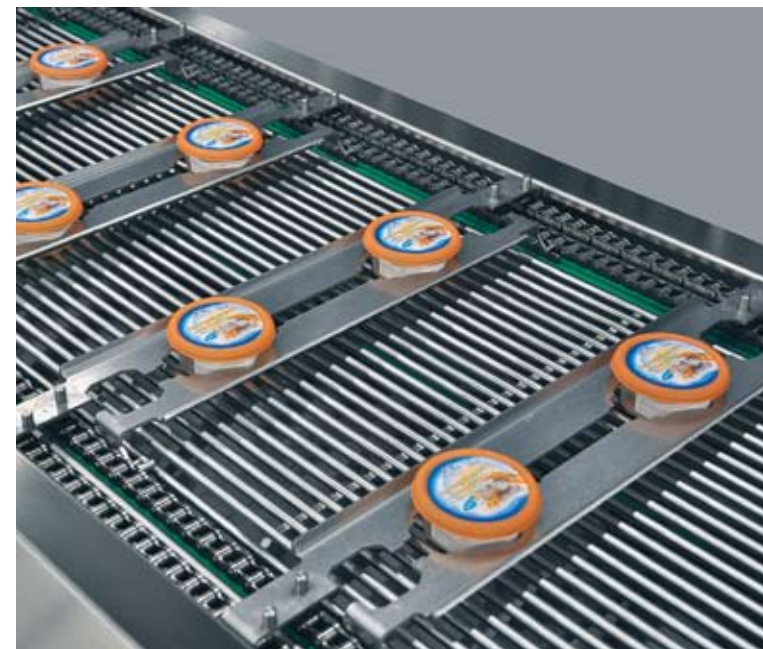
FLEXLINER SP

2-lane machine
Machine with handfill section and with two fed sealing and cutting stations which gives a format change at the push of a button



FLEXLINER SP

1-lane machine
with integrated auger filler and inline weigher for bulk goods and powdery products in trays



Universal transport rails

using specially shaped transport rails the transport of different cup shapes and sizes is possible



FLEXLINER SP

2-lane machine
with manual hand fill section and docking stations for mobile fillers

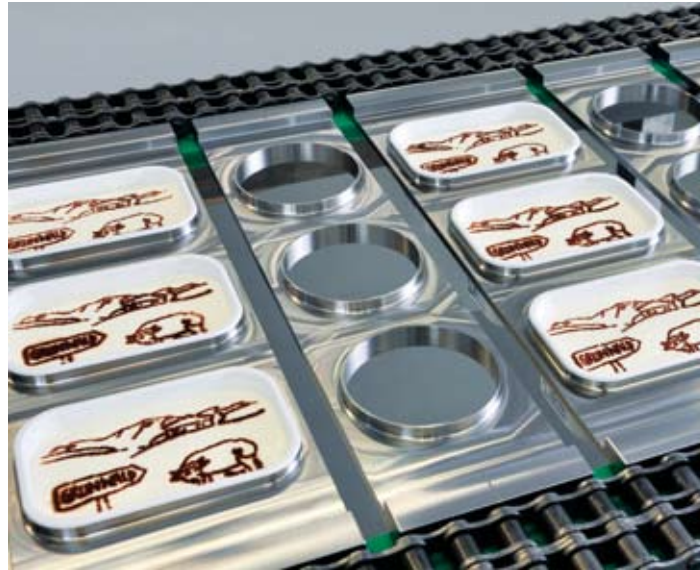
OPTIONS

Format changeovers

Another step towards increased efficiency:
the GRUNWALD quick-change system allows format changeovers in 5 - 10 minutes without tools. This means that the whole format change can be accomplished without having to exchange any parts, which is both simpler for the operator and more reliable.

Double advance feed for two different cup sizes

The machine can have two different sets of cup slats permanently installed so the format change simply requires the operator to press a button on the control panel! This saves time and increases efficiency!



Automatic change-over of cup setter/ snap-on lid setter

The cup or lid setter is mounted on a pneumatic slide so the format change simply requires the operator to select the correct one on the control panel



Pivoting lid-sealing station

The heat sealing station can be built with two sets of heads so that changeover simply involves turning the heads over



Storage systems

Depending on the cycle speed and the de-nest height, the standard storage time for cups and lids is 3 - 5 minutes.

In order to extend the storage time there are the following options:

- angled or curved magazines normally give a storage time of 5 - 10 minutes
- fully-automatic conveyor-based storage stations for both cups and lids normally give a storage time of up to 20 minutes (see photo)
- feeding of the packing materials from the upper floor via paternoster systems

Storage system

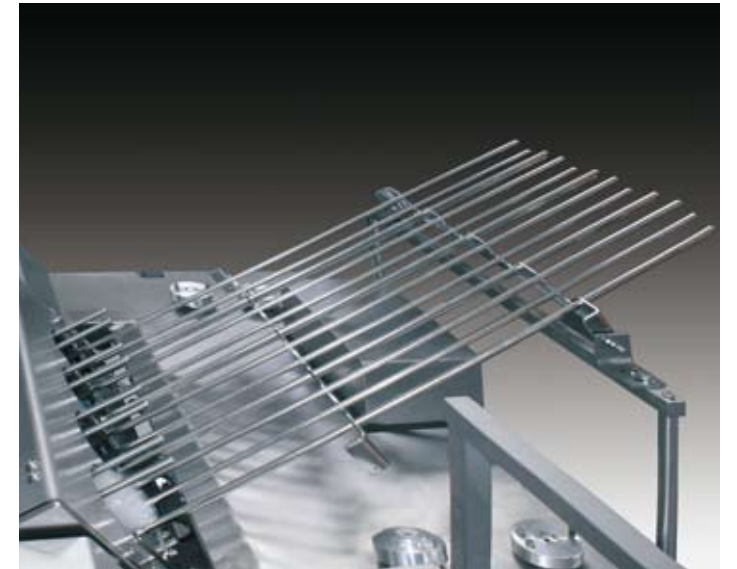
for cups and snap-on lids using stack infeed conveyors

Option:
Low level storage to allow packing material replenishment without using platforms



Angled rod lid magazine

For extended storage time of snap-on lids



Seal lid setter with split magazine

This allows easy replenishment of seal lids without having to stop the machine or use a platform. Another option is to fit two lid magazines which can either be used for quick changeover or to extend the lid storage capacity.



OPTIONS

Dosing systems

Depending on the customer's requirements GRUNWALD linear machines can be equipped with several piston dosing pumps and fillers for non-pumpable products.

The following dosing systems for various types of product can be integrated in GRUNWALD linear machines:

- multi-head weighers
- chamber fillers
- vibratory fillers
- auger fillers
- bulk filler

All dosing systems can be equipped with a downstream checkweigher or an integrated inline weigher with tendency control. If the product density fluctuates, then dosing volume is re-adjusted fully-automatically.

Inline weighing

Cups are lifted and weighed by electronic weighing cells directly after the main filling station. The inline weigher immediately assesses the weight of the cups and automatically adjusts the fill volume according to the average weight, thus reducing the number of incorrect cups as well as keeping the standard deviation to a minimum.

This inline weighing system can be used with very high cycle speeds of up to 50 cycles per minute.

Using a reject station for faulty cups, any under- or overweight cups are automatically rejected at the outfeed conveyor area.

Piston dosing system EASYCLEAN

with EHEDG certificate to meet maximum hygiene requirements

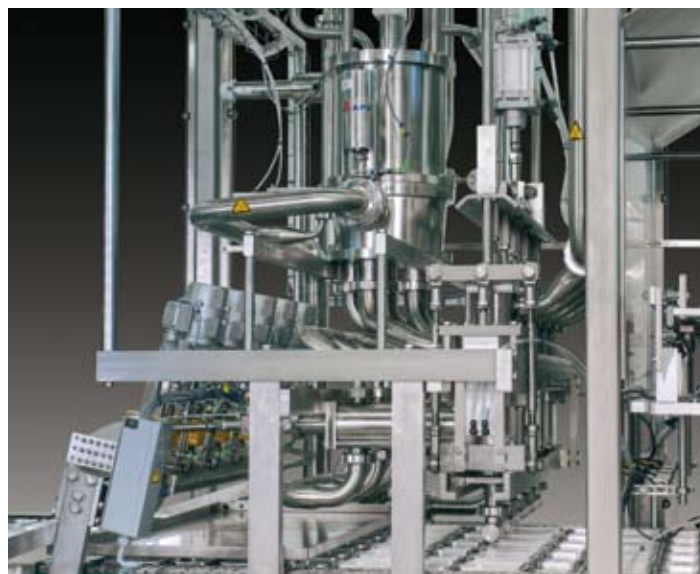


Product compensation cylinder

for margarine, butter and other pasty products

Inline fruit dosing

When filling fruit yoghurt the fruit preparation is directly metred and then dynamically mixed just in front of the piston filler. This makes a quick change of the fruit products possible and the product loss is minimised.



Reel fed sealing and cutting station

The option of sealing cups using reel fed film rather than pre-cut lids is available. The sealing film is unwound from the reel and positioned above the cups. In one working cycle the film is heat-sealed onto the cup and cut to match the shape of the cup with a hoop-steel knife.

If printed sealing film is used then the sealing and cutting station can be equipped with an eye mark control.

Sealing and cutting station

with film advance feed across the cup transport direction



Integrated packer for cups

Filled cups can be taken directly from the FOODLINER cup slats and are then placed into the waiting plastic / cardboard trays.

Depending on the cup closure the cups are gripped by vacuum suckers or by mechanical grippers and are packed into trays in one layer or multiple layers.

Integrated packer for cups

for packing cups in plastic or cardboard trays



OPTIONS

Hygiene levels
Product shelf life

In order to guarantee or extend the shelf life of the products different hygiene levels can be applied, e. g. linear machines can be covered with a laminar airflow cabin, clean room class 100, or with a sterile air cover.

Using the headspace gas injection technique developed by GRUNWALD residual oxygen levels of 2 - 3 % can be achieved when using pre-cut lids – at speeds of up to 50 cycles per minute.

Alternatively, a special version of the headspace gas injection system can achieve a residual oxygen level of < 1 %. This is done using a system with reel fed film, evacuation and then gas injection.

In addition GRUNWALD also offer cup and lid sterilisation using a mixture of steam and H₂O₂ (Hydrogen Peroxide) or UV(C) high-pressure radiators to achieve a maximum killing rate of germs and bacteria.

Headspace gas injection

for a low residual oxygen level

Seal lid or cup sterilisation

using UV(C) high-pressure radiators

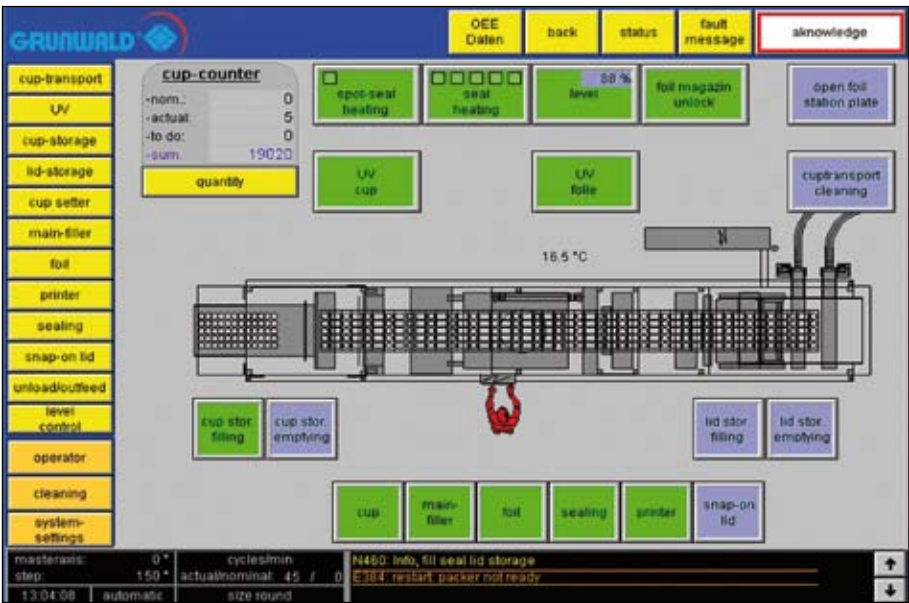
Cup sterilisation

with a mixture of steam and hydrogen peroxide



Operator convenience

The standard equipment on all GRUNWALD inline cup filling machines includes a 250 mm infrared colour message display. The screen is made of scratch resistant laminated safety glass which makes it much more durable than conventional resistive message displays. The clear design offers excellent levels of operator clarity.



Recording of production data

Production data acquisition system "McDat" (option)

To help improve the productivity of filling and packing machines all machine production data can be recorded for analysis using the "McDat" system, thus allowing improvements and adjustments to be carefully targeted where they will have the most affect.

The "McDat" continuously operates in the background automatically collecting data. This can then be evaluated on the touch panel or on an external PC via Ethernet connection.

McDat - [Evaluation W04711]											
Code		W04711		File Label	3526	from	Montag, 19. Oktober 2009		15:46:37		Update
Description		Foodies 00005		File Endname	23A	to	Dienstag, 20. Oktober 2009		14:40:00		PDF
Article		Batch	Operator	Article-quantity	Availability [%]	Theoretical Availability [%]	Length of Production including faults	Length of Production without faults	Recording period (Run-Id)		
Produce-100g, strawberry 100		Abn_129_2009-10-19	Operator A1	7029	94.54	99.04	00:01:15	00:01:44	Run: 19/10/2009 15:46:37		
Produce-100g, cherry 100		Abn_129_2009-10-19	Operator A1	1000	77.42	100	00:03:14	00:04:10	Run: 19/10/2009 16:21:54		
Produce-100g, cherry 100		Abn_129_2009-10-19	Operator B2	10413	99.94	100	07:17:47	07:18:42	Run: 19/10/2009 16:35:13		
Produce-100g, strawberry 100		Abn_129_2009-10-19	Operator C3	6050	97.11	98.94	00:04:05	00:04:10	Run: 19/10/2009 16:11:27		
Produce-100g, strawberry 100		Abn_129_2009-10-19	Operator C3	17913	91.03	100	02:07:03	02:08:42	Run: 19/10/2009 16:47:00		
Clean-100g, strawberry 100		Abn_129_2009-10-19	Operator C3	0	99.39	100	00:04:04	00:04:00	Run: 19/10/2009 16:27:14		
Produce-100g, peach 100		Abn_129_2009-10-19	Operator A1	14820	97.6	99.74	01:11:04	01:09:42	Run: 19/10/2009 16:24:00		
Produce-100g, strawberry 100		Abn_129_2009-10-19	Operator A1	14890	99.41	99.97	01:00:00	01:01:42	Run: 19/10/2009 16:41:25		
Fault description											
Machine-internal faults		Quantity	Total fault length	Average fault length	Reduction of availability [%]		Length of Production				
100	missing lid	1	00:00:21	00:00:21	1.04		00:03:15				
100	missing lid	1	00:00:09	00:00:09	0.45		Average (cycle minutes)				
100	missing cup film 3	1	00:00:12	00:00:12	0.50		230.68				
							Availability [%]				
							94.16				
Machine-external faults		Quantity	Total fault length	Average fault length	Reduction of availability [%]		Theoretical Availability [%]				
100	supply compressed air broken	1	00:00:00	00:00:00	0.41		76.70				
100	product shortage	1	00:00:00	00:00:00	0.41		Length of Production				
100	following location or packer not ready	1	00:00:11	00:00:11	0.58		00:03:42				



OUR PROGRAMME

You have the product. We have the technology.

In order to meet our customers' requirements with their different products, flexible machinery is needed.

To solve the most difficult tasks requires continuous innovation from our designers, programmers and development engineers. Forward thinking and customer focussed innovation are the keys for a successful machine concept. The best customised solutions arise from first consulting with our customers to ensure that we fully understand their requirements.

GRUNWALD cup filling machines not only succeed because of their durable and sophisticated design, but also by the range of optional equipment that is available and their versatile modular drive technology.

Drive

- pneumatic – for auxiliary functions
- mechanical – step-by-step cam-driven motion
- electronic – servo drive

Format changeover

- fully-automatic height adjustment
- rapid format changeover system without tools to guarantee a changeover time of between 5 and 10 minutes
- movable stations– format parts do not have to be changed

Extended storage stations for cups and lids

- curved, extended magazine rods for cups and snap-on lids
- fully-automatic storage systems for cups and snap-on lids giving a storage time of 10 – 20 minutes.

Miscellaneous

- leak test station
- inline checkweigher
- reject station for leaky or underweight cups

Fillers

- Piston filler / rotary valve filler
- Piston filler EASYCLEAN with EHEDG certificate
- Dosing system MOBIFILL for a product changeover time of < 5 Min.

Filling nozzles

- Tappet valve
- Membrane valve
- Rotary valve
- Wire cutter
- Open pipe nozzles

Types of lidding

- Sealing of aluminium/plastic
- Sealing of aluminium/aluminium
- Sealing of aluminium/glass
- Sealing of plastic/plastic – pre-cut or reel fed
- Snap-on lid

Sealing technology

- Pneumatic heat sealing
- Mechanical heat sealing
- Servo-driven heat sealing
- Hydraulic heat sealing
- Ultrasonic sealing

Cleaning

- Manual cleaning
- Intermediate cleaning
- CIP
- SIP

Hygiene

- Laminar airflow
- Sterile air covers
- Cup and lid sterilisation using a mixture of steam and hydrogen peroxide
- Cup and lid sterilisation using UV(C) high-pressure radiators

Electric components

- Modern electronic processor control with operator guidance via a graphical message display
- Electronic cam control with dwell time compensation
- Automatic batch start-up and completion programme
- Remote fault diagnosis via internet (or modem)
- Production data acquisition system McDat
- Transfer of production data via OPC server

Rotary-type machines

- ROTARY
- HITTPAC

Inline machines

- FOODLINER
- FOODLINER UC (ultra clean)
- FLEXLINER
- FLEXLINER UC (ultra clean)

Bucket line

- FLEXLINER XL

Dosing machines

- SERVODOS
- FLEXODOS
- MEGADOS
- SEMIDOS



ROTARY



HITTPAC



FOODLINER



FOODLINER UC



FLEXLINER



FLEXLINER XL



SERVODOS



FLEXODOS



MEGADOS



SEMIDOS



Administration building



Assembly hall



GRUNWALD® 
Dosing · Filling · Packing

GRUNWALD GMBH

Pettermandstraße 9
88239 Wangen im Allgäu/Germany
Phone +49 (0) 7522 9705-0
Fax +49 (0) 7522 9705-999
info@grunwald-wangen.de
www.grunwald-wangen.de