

Your product is our only concern



Rotary-type cup fillers

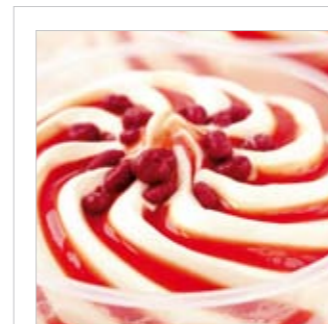


**GRUNWALD**®   
Dosing · Filling · Packing



# 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 food producing industry, delicatessen industry, meat processing industry, ready-meal producers and the cosmetics industry.



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



BUTTER, MARGARINE, MAYONNAISE, DIPS, SAUCES



JAM, SPREADS, FRUIT PUREE



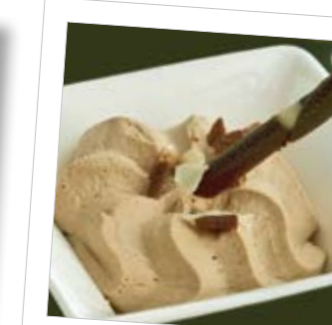
CREAM CHEESE, CURD



FRESHLY-PREPARED SALADS, NON-PUMPABLE READY-MEALS



DELICATESSEN SALADS



DESSERTS, SWEETS OF ALL KINDS

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.

# HITPAC AKH-019

## Our compact machine

This compact filling machine combines a maximum of flexibility with outstanding value for money.

The **HITPAC AKH-019** is a rotary machine with a proven, reliable design. The special features of this machine are its easy operation and rapid changeover to different products and packing materials.

This model is available in several versions: "R" with relay control, "S" with PLC control, "RE" and "SE" with an extended basic frame, and "SEP" with an integrated packer which was especially developed for dairies.

The **HITPAC AKH-019** is also suitable for filling cleaning agents and beauty products in cups and buckets (with or without handle).

### HITPAC AKH-019R HITPAC AKH-019S

Dimensions: 1,000 x 1,000 mm  
1- and 2-lane versions  
Approximately 2,500 – 5,000 cups/h  
Dosing range: 10 – 1,200 ml

### HITPAC AKH-019RE HITPAC AKH-019SE

Dimensions: 1,200 x 1,200 mm  
1- to 3-lane versions  
Approximately 2,500 – 7,500 cups/h  
Dosing range: 10 – 2,000 ml

### HITPAC AKH-019R

with relay control,  
2-lane machine



### HITPAC AKH-019SE

with PLC control,  
2-lane machine  
with laminar cabin



### HITPAC AKH-019SEP

with integrated packer.  
A single processor controls  
both the cup filler and the  
packer.

### HITPAC AKH-019SEP

Dimensions:  
2,000 x 4,000 mm  
1- and 2-lane versions  
Approximately  
2,000 – 4,000 cups/h  
Dosing range:  
100 – 600 ml



# HITPAC AKH-059

## Our versatile machine

This versatile rotary machine combines great flexibility and high speed with an attractive price.

The **HITPAC AKH-059** is the large version of the successful AKH-019 and shares its proven, reliable design which gives easy operation and rapid change-over to different products and packing materials.

Due to the size of the machine frame the **HITPAC AKH-059** offers sufficient space for many different stations and thus extends the possibilities available to you.

This machine can also be equipped with, for example, a packing material sterilisation system.

### HITPAC AKH-059

Dimensions: 1,750 x 1,750 mm

1- to 4-lane version

Approximately 2,500 – 10,000 cups/h

Dosing range: 10 – 2,000 ml

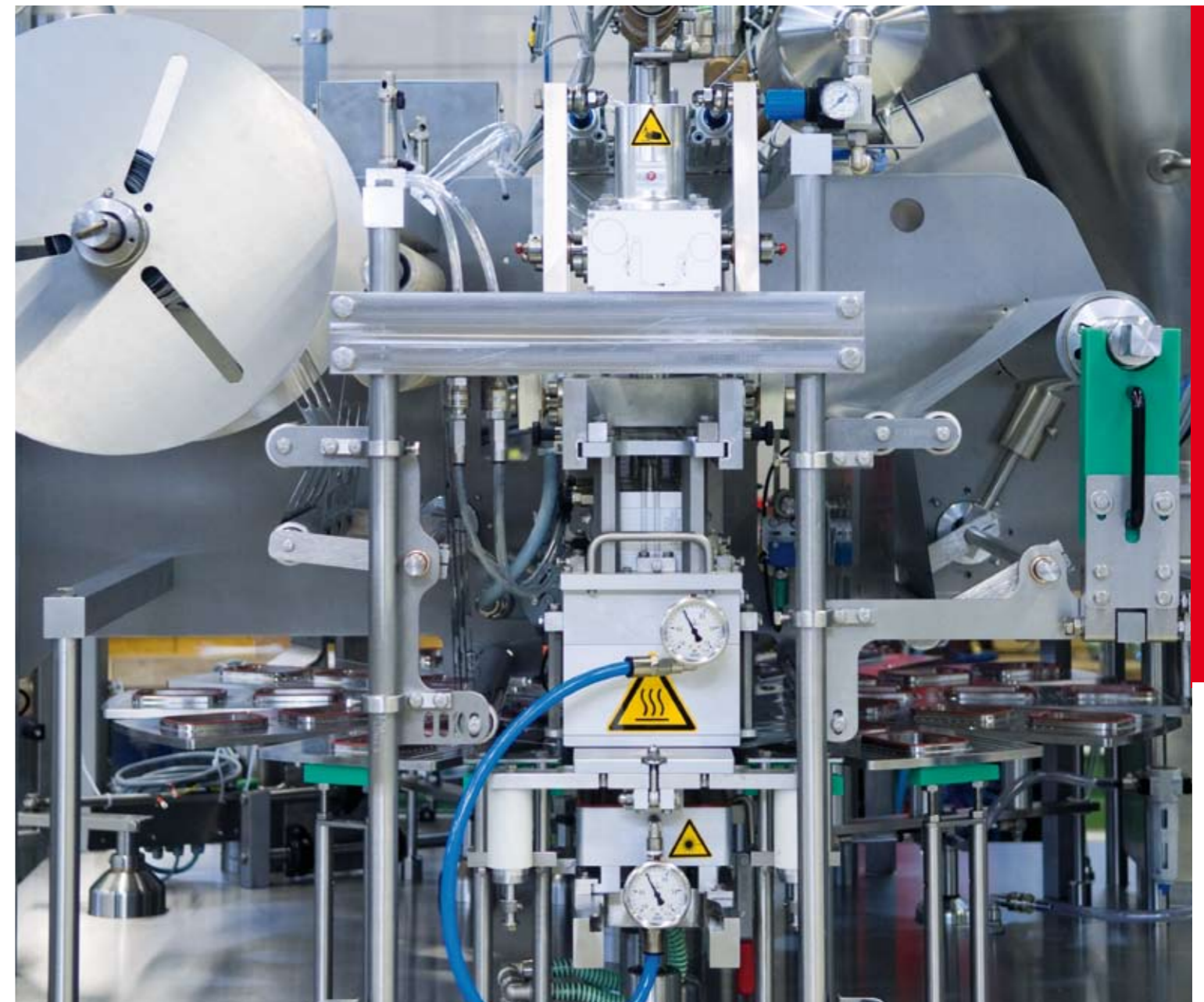
### HITPAC AKH-059

3-lane machine



### HITPAC AKH-059

3-lane machine with laminar cabin



### Sealing station for reel-fed film

This also gives the possibility of evacuation and gas injection.

Due to the sliding frame a format changeover can be carried out rapidly without any tools.

### HITPAC AKH-059VG

Dimensions:

1,750 x 1,750 mm

1- to 4-lane versions

Approximately

1,200 – 4,800 cups/h

Dosing range:

10 – 2,000 ml

The **HITPAC AKH-059VG** offers evacuation and gas injection up to 0.1 bar (MAP). The production speed varies depending on the required residual oxygen value within the cup. An integrated lid setter is also available.



# ROTARY 6.000

## Our most successful machine

Innovative and flexible, the ROTARY machine offers both reliability and performance.

The concept of GRUNWALD-ROTARY has been a continued success story. Our customers at home and abroad successfully use this rotary machine in multi-shift operation to generate an excellent return on their investment.

The ROTARY is available with mechanical drive or as a fully servo-driven machine.

We are constantly developing this rotary filler, using our innovative ideas, technical knowledge and real-world experience. We build individual machines with various specially-designed stations based upon this ROTARY chassis in response to individual customer's requirements and ideas.

### ROTARY 6.000

Dimensions: 1,500 x 1,500 mm  
1- to 4-lane versions  
Approximately 3,000 – 12,000 cups/h  
Dosing range: 10 – 2,000 ml

### ROTARY 6.000

2-lane machine



### ROTARY 6.000

2-lane machine with laminar cabin



### Rotary table with quick-change system

for a quick format changeover without any tools

### ROTARY 6.000

2-lane machine with automatic cup storage and angled snap-on lid magazine



# ROTARY 12.000 and 20.000

## Our high-capacity machines

These machines are the flagships of the GRUNWALD ROTARY range, and like all of our rotary machines their design is based upon a set of well-proven design concepts.

Their innovative hygienic design, with the minimum number of separate parts in the working area, all without edges and corners, guarantees easy and quick cleaning.

Special features which should also be emphasised are good working access as well as a low, operator-friendly working height. Even at speeds of more than 50 cycles per minute, the ROTARY machines are incredibly smooth and efficient in operation.

Maximum availability is guaranteed by short product and format changeover times. All this can be achieved by our cost effective machines.

### ROTARY 12.000

Dimensions: 2,000 x 2,000 mm  
2- to 6-lane versions  
Approximately 6,000 – 18,000 cups/h  
Dosing range: 10 – 2,000 ml

### ROTARY 20.000

Dimensions: 2,300 x 2,300 mm  
4- to 6-lane versions  
Approximately 12,000 – 18,000 cups/h depending on product and packaging material

2 x 3-lane up to 2 x 4-lane versions  
Approximately 15,000 – 20,000 cups/h depending on product and packaging material  
Dosing range: 10 – 1,000 ml

### ROTARY 12.000

4-lane machine with windows to view the drive area and an external control box



### ROTARY 12.000

4-lane machine with laminar cabin



### ROTARY 12.000

2-lane machine with integrated pasta and powder filler for filling dry soup

### ROTARY 20.000

5-lane machine with laminar cabin and packing material sterilisation



# OPTIONS

## Format changeovers

Another step towards increased efficiency: the GRUNWALD quick-change system allows format changeovers in 5 -10 minutes without tools.

Cup setter with sliding frame



Cup slat quick-change system



(Format) Trolley



## Storage systems

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

Storage system

for cups and snap-on lids



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)

## Cup indexing station

The use of a cup indexing station offers maximum flexibility. If you have small batches, or products which cannot be filled in fully-automatic operation, such as antipasti products, then pre-filled cups can be loaded into the rotary table tooling and liquids can be post-filled by means of a piston filler.

Cup indexing station

for pre-filled cups



When filling pumpable products the indexing station can be quickly exchanged for a standard cup setter. Thus empty cups can be automatically de-nested from the magazine as normal and can then be filled and closed.

# OPTIONS

## Dosing systems

Depending on the requirements rotary-type GRUNWALD machines can be equipped with between 1 and 3 piston fillers, and optionally with dosing systems for handling products which are non-pumpable. The following dosing systems for various types of product can be integrated into GRUNWALD rotary machines:

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

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



### Decorating station

HITPAC AKH-019SE, 2-lane



### Integrated weighing system



## Dosing system MOBIFILL

The GRUNWALD-MOBIFILL mobile dosing system is suitable for all pumpable products.

This mobile piston filler can be quickly disconnected and can then be cleaned independently of the machine - even outside the production room.

**The product changeover can therefore be carried out in less than 5 minutes.**

Dosing ranges: 20 ml – 1,900 ml, depending on the design of the filler  
Available in 2- to 6-lane versions

All product-specific settings of the piston filler are stored in the control of the cup filling machine. Therefore several fillers can be used alternately without any re-adjustments.

### Mobile piston dosing system MOBIFILL

Mounted on a GRUNWALD rotary-type machine



### MOBIFILL

Shown in its tilted position for easy cleaning of the product hopper without the need for a platform



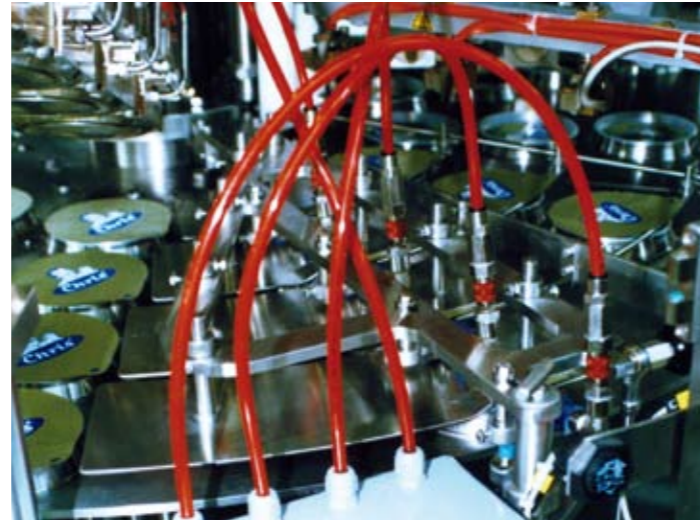
# OPTIONS

## 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. rotary-type machines can be covered with a laminar airflow cabin, clean room class 100, or with a sterile air cover.

### Headspace gas injection

for a low residual oxygen level



Using the headspace gas injection technique developed by GRUNWALD residual oxygen level of 2 - 3 % can be achieved when handling 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.

### Cup sterilisation

using UVC high-pressure radiators



In addition GRUNWALD also offer cup and lid sterilisation using a mixture of steam and H<sub>2</sub>O<sub>2</sub> (Hydrogen Peroxide) or UVC high-pressure radiators to achieve a maximum killing rate of germs and bacteria.

### Cup sterilisation

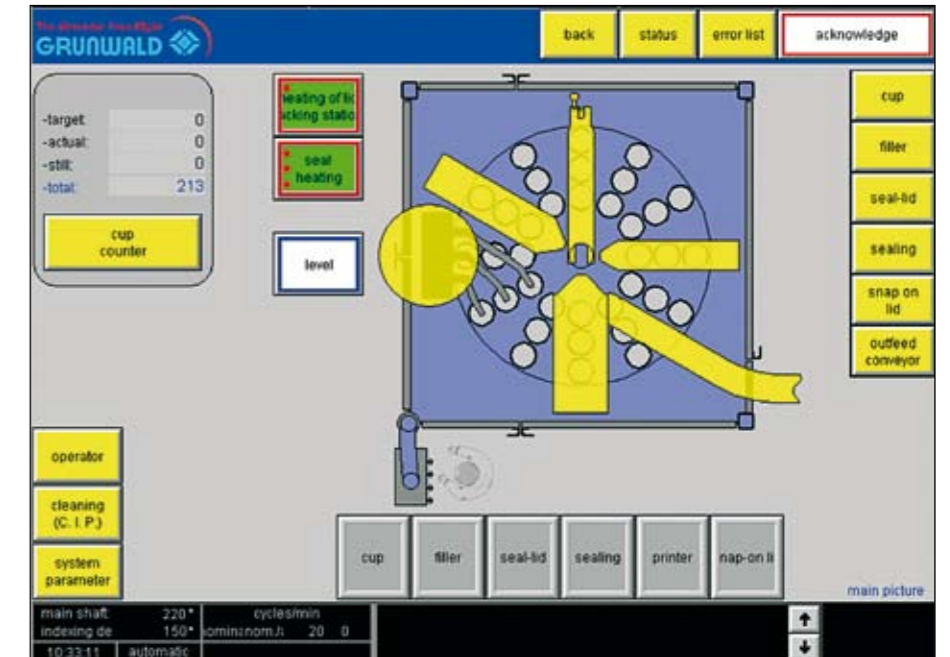
with a mixture of steam and hydrogen peroxide



## Operator convenience

The standard equipment on all GRUNWALD cup filling machines (except for the HITTPAC AKH-019) 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.

The HITTPAC AKH-019S is equipped with a conventional 145 mm resistive colour message display.



## 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 Touchpanel or on an external PC via Ethernet connection.

Code	File label	File Extension	Print	Montag, 19. Oktober 2009	15:48:27	Index		
AKH011			352K	Montag, 19. Oktober 2009	15:48:27			
Decoder	Full		23A	Donstag, 20. Oktober 2009	14:43:00	Print PDF		
Article	Batch	Operator	Article Qty%	Availability [%]	Theoretical Availability [%]	Length of Production including faults	Length of Production without faults	Recording period (From - To)
Proda - Typlohn 10kg, streckwey 144	Abu_123_2009-10-18	Operator A1	7670	94.24	98.08	00:00:13	00:01:44	Thu, 18/10/2009 15:48:27 Thu, 18/10/2009 14:20:24
Proda - Typlohn 10kg, streckwey 144	Abu_123_2009-10-18	Operator A1	8832	79.42	100	00:00:24	00:04:59	Thu, 18/10/2009 14:20:24 Thu, 18/10/2009 14:30:13
Proda - Typlohn 10kg, streckwey 124	Abu_123_2009-10-18	Operator B2	13422	99.99	100	00:01:47	00:01:42	Thu, 18/10/2009 14:30:13 Thu, 18/10/2009 23:04:00
Proda - Typlohn 10kg, streckwey 124	Abu_123_2009-10-18	Operator C3	4000	91.13	98.58	00:04:05	00:04:10	Thu, 18/10/2009 09:11:27 Thu, 18/10/2009 09:06:53
Proda - Typlohn 10kg, streckwey 124	Abu_123_2009-10-18	Operator C3	27610	98.93	98.78	00:01:02	00:04:42	Thu, 18/10/2009 08:47:00 Thu, 18/10/2009 13:04:54
Class - Typlohn 10kg, streckwey 144	Abu_123_2009-10-18	Operator C3	0	99.39	100	00:04:04	00:04:00	Thu, 18/10/2009 13:07:10 Thu, 18/10/2009 13:06:10
Proda - Typlohn 10kg, streckwey 144	Abu_123_2009-10-18	Operator A1	14800	97.9	99.34	00:01:04	00:01:40	Thu, 18/10/2009 13:07:10 Thu, 18/10/2009 13:07:10
Proda - Typlohn 10kg, streckwey 144	Abu_123_2009-10-18	Operator A1	14800	96.41	99.07	00:01:05	00:01:40	Thu, 18/10/2009 14:43:23
Fault description	Quantity	Total fault length	Average fault length	Reduction of availability [%]	Length of Production including faults	Length of Production without faults		
1 machine internal fault	3	00:00:47	00:00:14	2.96	00:03:15	00:01:44		
100 - missing lid	1	00:00:21	00:00:21	1.04	00:03:15	00:01:44		
100 - missing lid	1	00:00:29	00:00:29	1.45	00:03:15	00:01:44		
100 - missing p. low 3	1	00:00:12	00:00:12	0.53	00:03:15	00:01:44		
Fault description	Quantity	Total fault length	Average fault length	Reduction of availability [%]	Theoretical Availability [%]	Actual Availability [%]		
1 machine internal fault	4	00:00:49	00:00:12	2.42	99.98	99.98		
2 - supply compressed air low	1	00:00:01	00:00:01	0.47	99.98	99.98		
100 - product shortage	2	00:00:14	00:00:07	0.81	99.98	99.98		
100 - following fault on packer not made	1	00:00:11	00:00:11	0.54	99.98	99.98		
					Average Length of Production	00:03:15		
					Average Length of Production without faults	00:01:44		
					Average Length of Production	00:03:15		
					Average Length of Production without faults	00:01:44		

# OUR PROGRAMME

## You have the product. We have the technology.

In order to meet our customers' requirements and 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 UVC 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



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Dosing · Filling · Packing

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