

# MECHANICAL SEPARATION AND DRYING

Only the best technology will lead you to optimum results



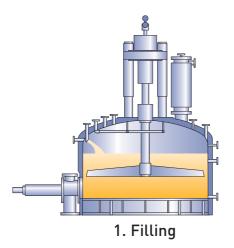
a solution ahead



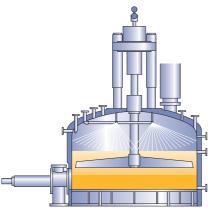
a solution ahead

# Content

- 4 Products and services
- 5 ROSENMUND progress by tradition
- 6 Filters and Filter/Dryers
- 8 Universal Dryers
- 10 Spherical Dryers
- 12 Pan Dryers
- 14 Double Conical Dryers
- 16 Pilot Plant Facility
- 20 Addresses

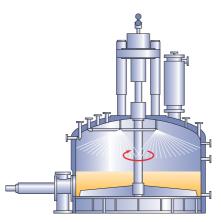


2. Filtering

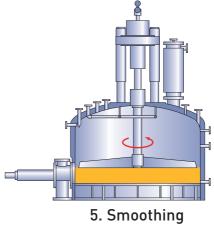


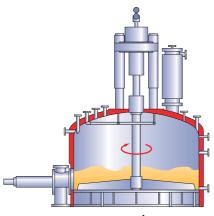
3. Displacement washing

Process steps Filters and Filter/Dryers

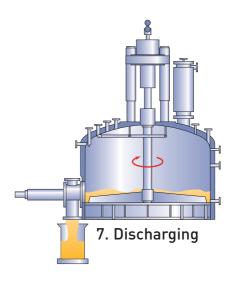


4. Reslurry washing





6. Drying/cooling

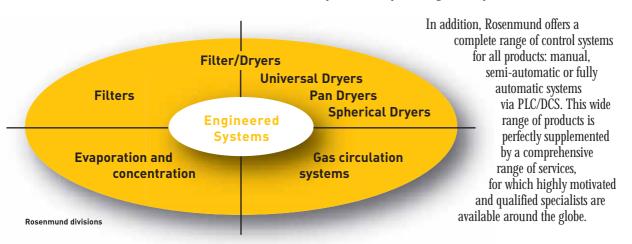




## **Products and** services

innovative products and effective services is the guarantee for complete success. For customers as well as for Rosenmund!

A closely linked system of Rosenmund offers a comprehensive range of innovative products that meet the highest standards of quality for the pharmaceutical and chemical industry: from separators for solid and liquid materials to high-performance filter systems and dryers to engineered systems.





Rosenmund spherical dryer 1000 l

All electrical and mechanical Rosenmund devices are in conformance with ATEX 95 (European directive 94/9/EC).

#### Range of services:

- Testing
- Process assistance
- Installation
- Commissioning
- Qualification
- **Training**
- After-sales services

#### Range of products:

- Engineered systems
- Separation & drying of liquid and solid material: Filters · Filter/Dryers · Dryers
- The following materials are available for manufacturing: Stainless steel · Hastelloy · Alloy · Glass-Lined
- Heating/Cooling systems
- Vacuum systems
- Gas recirculation systems
- Control systems
- Product discharge and containment systems
- **Pilot Plant Facility**

#### Spare parts and rental program:

- A wide range of rental machines
- Recycling & range of used products
- On-site service & maintenance program
- Spare parts service
- World-wide service centres local to customers



# Progress by tradition





Rosenmund S.A.S. Semur-en-Auxois, France

Liestal. Switzerland

1971

# Advanced technologies have a long tradition at Rosenmund.

For almost 200 years, Rosenmund has been known for innovative products that are accompanied by first-rate performance in service and customer support. The company was founded in Liestal/Switzerland in 1810, and today it is an extremely successful technology leader in the global market.

Rosenmund has acquired an excellent reputation with pioneering developments such as the very first Filter/Dryer, and it has consistently increased its technological lead since then. Today, Rosenmund is one of the world's best known manufacturers of mechanical separators, filters, dryers, and engineered systems for the pharmaceutical and chemical industry. And this committed company puts all its effort into extending this lead even further in the future!

ROSENMUND

#### Milestones

Foundation of the company
First vacuum filter
with mechanical discharge
First automatic pressure filter
with mechanical discharge
First pilot plant

1976 First Filter/Dryer
1981 First Nutrex reactor/Filter/Dryer

1984 First sterile Filter/Dryer
1984 First paddle filter, Filter/Dryer
with contact drying

1985 Basel innovation prize for Nutrex system

1994 ISO 9001 certification 1994 1,000<sup>th</sup> machine produced

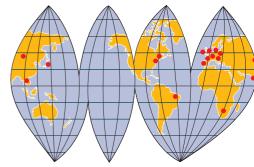
1995 Acquisition of the Guedu company (France)

dryer technology

1995 First Spherical Dryer1999 Rosenmund becomes

2001

a subsidiary of
De Dietrich (France)
Acquisition of Glatt Inox



Rosenmund is active worldwide





First vacuum filter 1965



a solution ahead



# Filters and Filter/ Dryers

The elementary advantages of the innovative Rosenmund filter and Filter/Dryer technology:

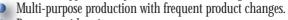
• Optimum efficiency

- Professional high performance
- Total flexibility Easy cleaning (CIP/WIP and SIP).

Whether in the chemical, pharmaceutical or food industry — Rosenmund filters and Filter/Dryers prove themselves through a very high efficiency in washing and isolating solids, even in the most difficult production processes. The high-performance Rosenmund filters can also be converted to Filter/Dryers simply and quickly, by the addition of upgraded features.

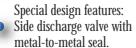
#### Side discharge.

The ideal application spectrum for side discharge:



 Processes with stringent requirements for low-particle and sterile production.

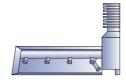
Limited building heights.



- Side discharge valve for pressure-tight closure after each product discharge – without prior cleaning of the sealing areas! Ideal for automatic process control and contamination-free production.
- Rosenmund Easiclean side discharge valve for manual cleaning in the case of difficult products.
- Two- or three-blade agitator for an efficient agitation and discharge process.
- Quick-lock bayonet or C-clamp main flange closure.

# Total discharge with the Gas Knife system.

The Rosenmund Gas Knife is a unique and innovative solution that enables a total product discharge without manual intervention.



#### Glass-Lined Filter/Dryer.

The great demand for non-corrosive Filter/Dryers led to this joint development between De Dietrich and Rosenmund. The innovative Glass-Lined/Hastelloy construction guarantees maximum resistance to chemical solutions and aggressive solvents.





Side discharge valve



as Knife System



Rosenmund Filter/Dryer 0,4 m<sup>2</sup>



Rosenmund Filter/Dryer 2 m<sup>2</sup> sterile version

Rosenmund Filter/Dryer 0.4 m<sup>2</sup>





# Cleaning and Decontamination (CIP/WIP and SIP).

CIP/WIP and SIP systems are an integral part of Rosenmund's process equipment range, including steam sterilisation and aseptic use. The application of specialised spray systems and sterilisation methods validation of the vessel preparation process.

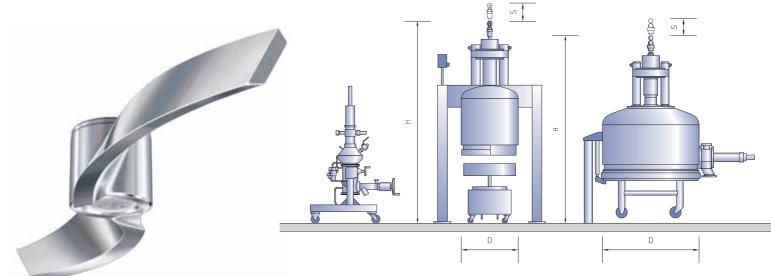
#### Special applications: microwave drying.

The use of microwaves for chemical processes provides clear advantages:

- Improved heat transfer to the product.
- Volumetric and selective heating.
- No harmful substances.
- Gentle and fast drying of difficult products.
- Low energy consumption.
- Reduced drying times, especially in the case of temperature-sensitive products and when conventional heat transfer methods are difficult to apply.



Rosenmund Filter/Dryer 0.4 m<sup>2</sup>



2-blade agitator

Nominal area m² F F/D		Used volume l/m³ F F/D		volume l/m <sup>3</sup> volume l/m <sup>3</sup>			Drive power kW F F/D		Empty weight approx. kg F F/D		Container D mm F F/D		H mm F F/D		mm F/D
0,03		17		6		1,5		320		203		1960		200	
0,06		35		12		3		600		288		2670		200	
0,1	0,1	80	80	30	30	4	4	1000	1000	400	400	1910	2240	250	250
0,2	0,2	145	145	55	55	4	5,5	1500	1500	550	550	2320	2560	250	250
0,3	0,3	185	185	75	75	4	5,5	2000	2000	630	630	2420	2660	250	250
0,4	0,4	350	350	130	130	5,5	7,5	2500	2500	750	750	2420	2660	250	250
0,6	0,6	490	490	185	185	5,5	7,5	3000	3000	900	900	2710	2940	300	300
1	1	1,05	1,05	0,44	0,44	7,5	11	3500	3500	1200	1200	3450	3850	400	400
1,5	1,5	1,4	1,4	0,6	0,6	11	11	4500	4500	1400	1400	3450	3850	400	400
2	2	1,8	1,8	0,8	0,8	11	11	5000	5000	1600	1600	3450	3850	400	400
2,5	2,5	2,3	2,3	1	1	11	15	6000	6000	1800	1800	3450	4150	400	400
3	3	2,9	2,9	1,2	1,2	15	18,5	8000	8000	2000	2000	3850	4200	400	400
4	4	3,7	3,7	1,6	1,6	15	18,5	9000	9000	2300	2300	3900	4250	400	400
5	5	5,2	5,2	2,4	2,4	18,5	22	10000	10000	2500	2500	4250	4750	500	500
6	6	6,4	6,4	3	3	18,5	22	12000	12000	2800	2800	4250	4750	500	500
8	8	7,9	9,9	4	4	22	37	14000	14000	3200	3200	4400	5450	500	500
10	10	10,2	12,5	5,3	5,3	22	37	18000	18000	3700	3700	4500	5100	500	500
12	12	13,9	15,4	6,2	6,2	25	37	22000	22000	4000	4000	5100	5250	500	500
16	16	16,8	18,7	7,85	7,85	30	45	26000	26000	4500	4500	5100	5250	500	500



The horizontal construction with an integrated agitator/chopper system and full-area heating allows an unequalled application spectrum and extremely short drying times with the highest possible fill volume.

# Rosenmund Universal Dryer 8000 I



Agitator with chopper

## Universal Dryer

# The innovation: agitator and chopper in one system.

The better the mixing, the more efficient the drying. To achieve a maximum drying performance, Rosenmund has integrated a high-speed rotating chopper in one of the two agitator arms of the horizontal dryer. This chopper moves through the product with the agitator, efficiently breaking up lumps of agglomerates (wet or dry) but also providing additional mixing capability.

# Fast drying through full-area heating.

Maximum heat transfer input to the product is achieved by heating the total vessel area and the agitator. A further advantage is the formation of an especially fine product powder in the dryer, which accelerates the heat transfer and thus the drying. The particle size of the product can be decrease further by the addition of a fixed stator to the agitator system.

#### Wet or dry chopping.

Wet or dry chopping with the chopper/stator combination can make further milling or sieving steps unnecessary. The wet milling reduces the thermal strain on the product. In addition, a good milling effect is often achieved with an appropriate grain size distribution. For products that are sensitive to high-shear agitation, the chopper can be removed quickly and easily.

# Huge flexible degree of filling due to a high torque and a very good mixing effect of the agitator/chopper system.

Hydraulic drives for the agitator and chopper ensure a consistently high torque, even with low rotational speeds. Therefore the dryer can be filled between 20-90% of total capacity whilst retaining optimal agitation, mixing and drying performance. This huge degree of flexibility makes it possible to dry batch sizes that have greatly varying volumes and products that have greatly varying physical characteristics. Regardless of whether you have suspensions, solutions or filter-moist products — lumpy transition phases in which the agitator and chopper require more power can be easily overcome.





Assembly: Rosenmund Standard Dryer 4000 l



Agitator with chopper





# Agitator to wall clearance prevents crust formation and product overheating.

The special construction of the agitator (results in a typical wall clearance of 2-5 mm) therefore the entire interior surface of the dryer is evenly coated. Crust formation is therefore absolutely minimised and heat is applied evenly to the product during the entire drying process. Since the agitator is supported at both ends of the shaft, it results smaller wall clearances than those in spherical and pan dryers can be achieved whilst maintaining the very high agitator torque!

#### Special version.

Standard Dryer with three-arm agitator instead of chopper.

# Easy inspection through the front door.

The hinged front door, which can be quickly and easily opened for inspection, provides access to the entire diameter of the cylinder. The agitator is held in place by the main bearing.



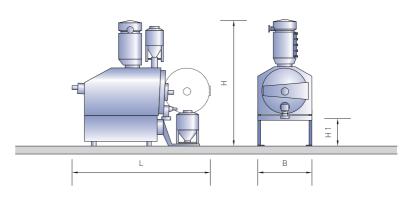
Rosenmund Universal Dryer 8000 l

#### Important advantages summarised:

- Chopper integrated in the agitator arm.
- Reliable lumpbreaking.
- Small particle / grain size.
- Wet and dry milling.
- Drying independent of the initial product consistency.
- Small agitator to wall clearance.
- Hinged door for easy inspection.
- Full-surface heating of the agitator and vessel.
- High torque means maximum filling volume.
- Complete encasing of the drive system.
- Single-nozzle device on the agitator for applying nitrogen (N<sub>2</sub>) or liquids for granulation.
- Pilot scale trials can be conducted in the Rosenmund technical centre.



Chopper



Nominal volume l	Used volume l	Drive power kW	Empty weight approx. kg	H mm	L mm	B mm	H1 mm
50	50	11	1400	3450	2000	750	950
100	100	11	2700	3650	2300	950	950
200	200	15	3500	3850	2700	1100	950
400	400	30	4000	4250	2800	1300	950
600	600	37	4800	4600	2900	1450	950
800	800	37	5500	4600	3100	1450	950
1000	1000	45	7200	5500	3400	1700	1400
1500	1500	75	8000	5800	3800	1950	1400
2000	2000	75	8500	5800	4100	1950	1400
3000	3000	75	10000	5900	4100	2400	1400
4000	4000	75	11000	6000	5000	2400	1400
6000	6000	90	12000	7100	5400	2600	1400
8000	8000	110	14000	7300	5700	2800	1400

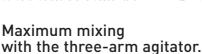


# Cleaned in a flash. Emptied completely. The easy cleaning and simple emptying are the most

**Spherical Dryers** 

The trendsetting spherical dryer range with top or bottom drive is the latest development of the proven Rosenmund dryers that achieve the highest performance standards. A versatile solution for drying, mixing and granulating.

The easy cleaning and simple emptying are the most convincing features of the Rosenmund spherical dryer. Its simple structure, the spherical vessel and the slide ring seal above the product area make CIP/WIP cleaning and SIP sterilisation possible with a few spray balls or ARD nozzles. Cleaning fluids and dissolved product residues run out through the drain fittings at the lowest point of the vessel. Along with the slope in the direction of the outlet valve, this enables a complete and fast product discharge. The product outlet is a special ball valve that seals the vessel with minimum volume.



The spherical dryer achieves a high degree of mixing via a three-arm agitator with a high rational speed. By heating the agitator, the heat-exchange area can be increased further, thus improving heat transfer and preventing wet goods from being baked onto the hub and blades. These are the ideal prerequisites for short drying times and a reproducible drying results.

# High speed chopper reduces agglomerate formation.

To prevent the formation of agglomerates that avoid moisture from being removed from the product, an additional chopper will improve results in many cases. The vertically arranged chopper brings two decisive advantages: First of all, it helps to achieve consistent results that are practically independent of the filling volume. Secondly, no wet product is sprayed on parts of the walls that the agitator does not reach.

#### Everything in view during inspection!

To allow quick inspection at any time, the top driven spherical dryer can be opened easily, by swivelling up the lower half of the sphere. This simple operation is achieved by a hydraulic part-turn actuator driving open a bayonet quicklock main flange, all at the touch of button! The dryer can be fixed to the ceiling, ideal for cleaning-room installations for product offloading.



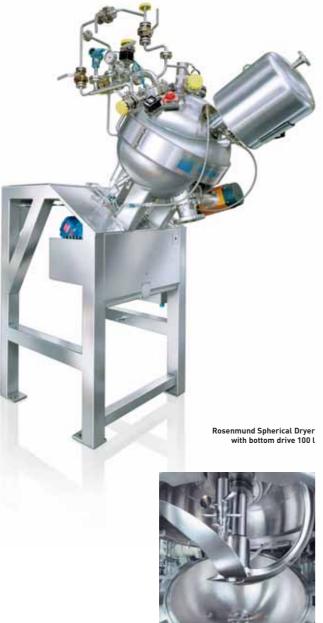
Rosenmund Spherical Dryer with top drive 1000 l



Rosenmund Spherical Dryer with top drive 1000 I



Rosenmund Spherical Dryer



Rosenmund Spherical Dryer with top drive 100 l

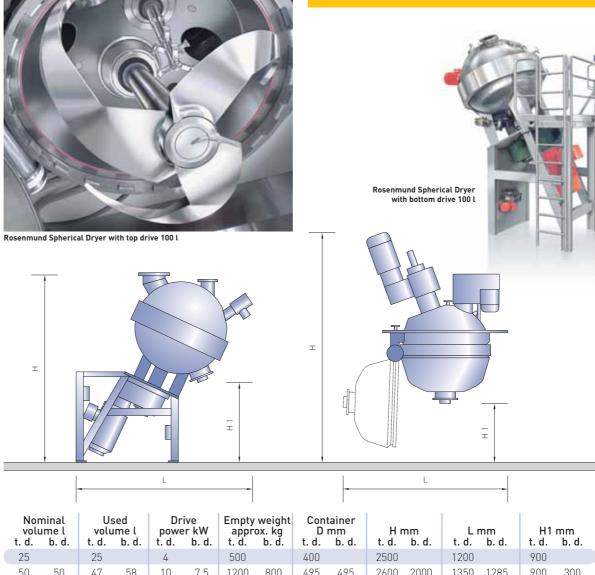


# Explosion pressure surges? No problem at all!

Since dryers are usually designed for vacuum operation, the risk of thermal decomposition or dust explosion requires them to be designed for higher pressures in many cases. The spherical shape with maximum volume and minimum surface is the ideal geometry for an explosion containing vessel. The ball valve will remain in the sealed position even if a power failure occurs, and it is a reliable component in this fail-safe principle. A construction that is resistant to explosion pressure surges is therefore easily accomplished!

#### Important advantages at a glance:

- Drying, mixing and granulating.
- Fast and easy cleaning (CIP/WIP and SIP).
- Total product discharge.
- Short drying times.
- Reproducible drying result.
- Heatable agitator.
- Vertical chopper/lumpbreaker.
- Easy to inspect.
- Assembly in ceiling.
- Containment of explosion pressure surges.



Nominal volume l t. d. b. d.			sed ime l b. d.		ive er kW b. d.		weight ox. kg b. d.		tainer mm b. d.	H r t. d.	nm b. d.	Lı t. d.	mm b. d.	H1 t. d.	mm b. d.
25		25		4		500		400		2500		1200		900	
50	50	47	58	10	7,5	1200	800	495	495	2600	2000	1350	1285	900	300
100	100	131	155	15	11	1500	1300	695	695	2700	2455	1500	1700	900	895
200	200	204	230	20	18,5	1800	1600	805	805	2800	3050	1650	1860	900	1115
300	300	283	320	22	22	1800	1800	898	898	2900	3150	1950	2020	900	1225
400	400	427	457	30	37	3000	2800	1030	1030	3450	3610	2000	2115	900	1390
600	600	675	722	33	45	4000	3500	1200	1200	3850	3890	2225	2222	1050	1425
1000	1000	1009	1079	45	55	6000	4400	1372	1372	4900	4165	2700	2330	1400	1460
2000	2000	1804	1929	55	75	8500	7500	1665	1665	5900	4595	3250	2790	1700	1535
	4000		3733		90		9500		2075		5640		3230		1900
	6000		5598		110		12500		2375		6435		3760		2265





## Pan Dryers

# Field-proven and reliable: the Filter/Dryer design.

# Heated agitator with adjustable speed.

The pan dryer is based on the well established and proven Filter/Dryer technology; here, however, the porous filter bottom is replaced with a heated flat bottom.

The simple change in the design of the heated flat bottom enlarges the heating area considerably. The agitator of the pan dryer is also normally heated and is equipped with speed control. Many elements such as the metallically sealed side discharge valve have been taken from the proven Filter/Dryer range.

# Fast agitator replaces the chopper.

The top driven pan dryer (alternatively with bottom drive as well) relies on rotational velocity. A particularly fast agitator with a circumferential speed of up to 3 m/s (spherical dryer only around 1.5 m/s) ensures optimum mixing. The lifting and lowering agitator also provides mixing on the vertical axis. At the same time, the minimal agitator to wall clearance keeps the wall free from product crust. The rotational high speed of the agitator combined with its vertical translation does not require the use of a chopper.

# Slide ring seal without product contact.

As with the spherical dryer, the mechanical seal of the pan dryer is also advantageously located outside of the product area. Depending on the application, it can either be lubricated with gas or liquid. The axial motion of the agitator is sealed by metal bellows, as with the Filter/Dryer.



Rosenmund Pan Dryer Final assembly



Rosenmund Pan Dryer Final assembly



F

#### Easy internal inspection.

Inspection is easily possible when the pan bottom is lowered, as with the spherical dryer. In the case of frequent cleaning and opening cycles, the pan dryer is also ideally equipped with a time-saving main flange bayonet quick-lock fitting instead of C-clamps.



Rosenmund Pan Dryer, Final assembly

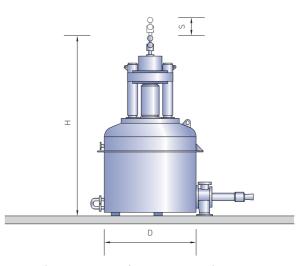
#### Important advantages at a glance:

- Proven Filter/Dryer technology.
  Agitator speed-controlled and heated.
  Fast cleaning (CIP/WIP and SIP).
  Simple emptying.
  Short drying times.

- Short drying umEasy to inspect.



Rosenmund Pan Dryer agitator



	minal ume l	Used volume l	Drive power kW	Empty weight approx. kg	Container D mm	H mm	S mm
	100	100	6	1500	550	2350	250
	200	200	8,8	2500	750	2500	300
	400	400	12	3000	900	2500	300
1	000	1000	15	3500	1200	3750	500
1	600	1600	16	4500	1400	3750	500
2	300	2300	23	5000	1600	4400	600
3	000	3000	29	6000	1800	4400	600
3	700	3700	35	8000	2000	4400	600
5	000	5000	43	9000	2300	4500	600
6	000	6000	59	10000	2500	5000	600
7	500	7500	70	12000	2800	5000	600





# De Dietrich Double conical dryer SR

The glass lined double conical dryer type SR is a device that was designed for drying easily flowing products.

The rotation of the double cone allows the product to be mixed without an internal agitator.

Field-proven and reliable: the Dryer principle.

#### A proven concept.

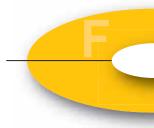
The design of the double conical dryer combines the drying and mixing function in one simple and stable device. The operation and maintenance costs are very low. The drying times are reduced to an acceptable level. As a result, this concept provides a simple solution for many drying requirements.



#### The advantages of a glass lined coating.

The characteristics of the glass lined coating provide special solutions for numerous processes:

- Anti-corrosion, when the dry solution is not chemically neutral.
- Fire polishing and anti-sticking, the dry mass does not stick.
- Anti-contamination for products that require a 100% metal-free contact.
- Easy cleaning for API.



#### Various options:

- Adjustable lump breakers (choppers) for materials that tend to become lumpy.
- Insulation and special coating.
- Heated cover to prevent condensation.
- "Clean room" version with minimised dead zones and remote control for filling, emptying and
- cleaning functions.
   Stainless steel design available.

#### A De Dietrich product.

The double conical dryer is part of the De Dietrich product range. Like Rosenmund, this company is a member of the French group De Dietrich Process Systems with its long tradition, innovation and expertise.



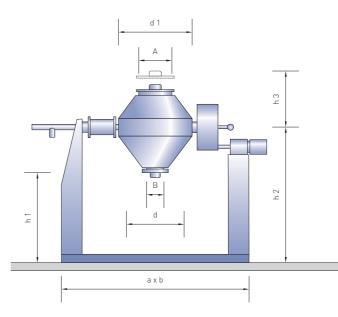
Double Conical Dryer SR 1000: Stainless steel design with ruffled cover

#### Important advantages at a glance:

- Functional design.
- Simple operation.
- Problem-free cleaning.
- Low operating costs.
- Wide range of options.



Double Conical Dryer SR



Type Container Heating SR volume area l m <sup>2</sup>			Drive power kW	Empty weight appr. kg	a x b mm	h1 mm	Dim h2 mm	ensions h3 mm		B mm	d mm	d1 mm
100	120	1.15	1.5	1900	1795 x 900	676	1300	520	300	150	600	700
400	475	2.8	2.2	2100	2355 x 1200	1288	1950	785	450	160	1000	1100
1000	1040	4.0	3	3300	2705 x 1500	1327	2150	935	450	200	1300	1400
1600	1625	6.7	4	4300	3084 x 1700	1494	2450	1070	450	200	1500	1600
2500	2550	9.5	5.5	5800	3384 x 2000	1490	2600	1225	450	200	1800	1900
4000	4300	13.1	11	8300	3937 x 2300	1502	2850	1465	500	250	2100	2250
6300	6500	17.9	15	11000	4301 x 2600	1581	3100	1640	500	250	2400	2550



## **Pilot Plant Facility**

Experiments and process optimisation in the new pilot plant in Liestal/Switzerland.

## Made-to-measure solutions for all customers.

The decisive step from theory to practice. In the recently built sate technical centre pilot plant, customers can perform practical experiments and test process optimisation steps with experienced experts from Rosenmund.

No two customers are alike. No two problems are the same. From years of experience, we know that every equipment is unique. Every customer has his own products, which are manufactured on different premises by individual employees — based on different ideas. For this reason, we offer comprehensive services to individually optimise our product range of delivery — at our new technical centre.

#### A completely new technical centre.

The fully equipped Rosenmund technical centre opened in November 2002. This international test centre provides Rosenmund customers from the pharmaceutical and chemical industry with a complete range of services. The technical centre is designed for carrying out industrial experiments with products from the chemical and pharmaceutical industry. The recognised core competence lies in the area of the concentration and drying of API (Active Pharmaceutical Ingredients) that contain solvents.

# Plant and know-how from one supplier.

The Liestal technical centre provides Rosenmund customers with comprehensive competence that significantly simplify the decision-making involved in selecting plants and machines. Do you want to change or optimise your process? For this purpose, you will want to compare systems — for example, between a horizontal, vertical or spherical dryer. No problem at the new technical centre; our experimental units are at your disposal. Since we provide all the systems, we can guarantee you objective advice.



Rosenmund technical centre, Universal Dryer 100 l



Rosenmund technical centre, Universal Dryer 100 l



Rosenmund technical centre, Evapor CEP-1

# Direct advantages for Rosenmund customers:

- Shorter equipment commissioning times through determination of product suitability correct system selection and process sequence specification.
   Optimisation of processing times through precise
- Optimisation of processing times through precise scale-up and / or estimation of vessel residence times throughout the process route.
- Determination of effective cleaning processes (CIP/WIP and SIP).
- Determination of the selection criteria according to customer evaluation, e.g. drying time, quality (crystal shape, activity etc.), emptying, CIP-capability, price.



Dr. Rainer Laible, manager of the Rosenmund technical centre

# Due to their special design, which fulfils all GMP standards, Rosenmund equipment allows complete GMP and FDA validation.

#### Summary of Rosenmund Tech Centre Pilot Plant Capability:

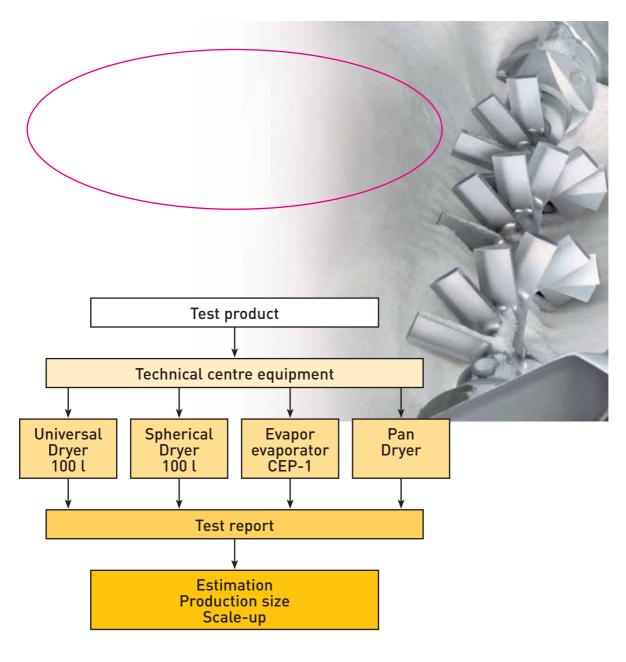
- Data acquisition and analysis.
- Scale-up experiments as a basis for projection to production sizes in respect to filtration and drying time, fill volume, recrystallisation and particle size distribution.
- Optimisation of the process sequence.
- Machine optimisation.
- Product trials for equipment selection and to establish suitability.







Spherical Dryer 100 l





# High-Tech Solution

#### Engineering.

Profit from the superior competence of high-tech solutions! We not only perform the planning and integration of our product in your buildings, we also partner with our customers to provide fully engineered solutions from concept stage to performance qualification.

#### Product handling.

We provide almost everything to do with the filter and vacuum dryer: screens/sieves, lifting columns, containers, container mixers, insulation valves, weighing systems and many other pieces of equipment.



#### Training and courses.

Should your personnel already be trained on the new control system when the plant is delivered? Or does your process first have to be optimised on the new plant?

We will be happy to support you with help and advice.



Rosenmund is a subsidiary of the French De Dietrich technology group.
Rosenmund customers therefore have quick access to the technology, the know-how and the global service of an international company at all times.
You benefit from this!

Service without limitation or borders.
Whether you need advice or troubleshooting, information or services – we provide you with a quick and direct connection worldwide through our global sales and service network. This guarantees short reaction times and excellent service.
The addresses of our factories and sales representatives are found here.



## Addresses

Switzerland

#### ROSENMUND VTA AG

DDPS SWITZERLAND

Headquarters

Liestal

Phone +41 61 925 11 11

Fax +41 61 921 48 93 info@rosenmund.org

France

## DE DIETRICH PROCESS SYSTEMS S.A.S.

Headquarters BP 8 –F 67110 Zinswiller

Phone +33 3 88 53 23 00

Fax +33 3 88 53 23 99 sales@dedietrich.com

## DE DIETRICH PROCESS SYSTEMS S.A.S.

Courcouronnes Site (EIVS) Phone +33 1 69 47 04 00 Fax +33 1 67 47 04 10

#### ROSENMUND S.A.S.

Semur en Auxois Phone +33 3 80 97 12 23

eivs@eivs.fr

Fax +33 3 80 97 07 58 rog@rosenmund.fr

Germany

#### **QVF EGINEERING**

Mainz

Phone +49 61 31 97 04 0 Fax +49 61 31 97 04 500 mail@qvf.de

Belgium

#### IVIA N.V.

Heverlee-Leuven Phone +32 16 40 5000 Fax +32 16 40 5500

info@ivia.be

into@ivia.b

### Holland

CM Breda

Phone +31 765 42 15 44 Fax +31 765 42 15 76

info@ivia.nl

Great Britain

#### QVF

#### PROCESS SYSTEMS Ltd.

Stafford

Phone +44 1785 609 900 Fax +44 1785 609 899

sales@qvf.co.uk

#### Ireland

#### DE DIETRICH PROCESS SYSTEMS IRELAND Ltd.

Shannon

Phone +353 61 366 925 Fax +353 61 366 854 bobmulgueen@eircom.net

Japan License

#### TANABE WILLTEC Inc.

**Osaka** 

Phone +81 6 6356 11 55 Fax +81 6 6321 58 26 tw-nifty@mxl.alpha-web.ne.jp

Spain

## DE DIETRICH EQUIPOS QUIMICOS S.L.

Barcelona

Phone +34 93 21 88 613 Fax +34 93 21 84 709 comercial@dedietrichbcn.com

#### **DE DIETRICH SOUTH**

AFRICA (PTY) Ltd.

Dunswart

South Africa

Phone +27 11 918 41 31 Fax +27 11 918 41 33 ddsa@iafrica.com

ausa C Ium

## DE DIETRICH PROCESS SYSTEMS Inc.

Union, NJ

Phone +1 908 686 49 00 Fax +1 908 686 83 40 sales@ddpsinc.com

Charlotte, NC

Phone +1 704 587 04 40

Fax +1 704 588 68 66

rosenmund@ddpsinc.com

Brazil

#### DE DIETRICH DO BRAZIL

São Paulo

Phone +55 11 6703 73 80 Fax +55 11 6702 42 84 ddbrazil@uol.com.br

Singapore

#### DE DIETRICH SINGAPORE (PTE) Ltd.

Phone +65 6 861 12 32 Fax +65 6 861 61 12 dedietrichdds@pacific.net.sg

hina

#### DE DIETRICH PROCESS SYSTEMS

Shanghai

Phone +86 21 5261 0128/5261 0097 Fax +86 21 5261 014

florian.bordier@dedietrich.com

#### India

## DE DIETRICH PROCESS SYSTEMS

Andheri (East), Mumbai 72 Phone +91 22 2850 5794/2850 5731 Fax +91 22 2850 5731

Russia

## DE DIETRICH PROCESS SYSTEMS

Sergey Grabovski Phone +7 916 270 5399 ddps.russia@dedietrich.com

Thailand

#### DE DIETRICH SINGAPORE (PTE) Ltd. (Thailand Office)

Bangkok

Phone +66 91 29 55 92 Fax +66 27 51 87 35

ddps.thailand@dedietrich.com

member of

De Dietrich

PROCESS SYSTEMS

a solution ahead