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# Centrifuges PHARMACEUTICAL INDUSTRY



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## HEINKEL DRYING AND SEPARATION GROUP

The companies making up the HEINKEL DRYING AND SEPARATION GROUP between them have over 130 years of experience, offering innovative and dependable solutions in filtration and centrifugal technology, nutsche and vacuum drying and mixing.

Our brands BOLZ-SUMMIX, COMBER, ELLERWERK, GFT and HEINKEL have excellent reputation around the world.

This group of international companies boasts one of the widest product ranges for the pharmaceuticals, fine chemicals, chemical and food products industries:

- Lab Centrifuges
- Vertical Centrifuges
- Sedimentation and Classifying Centrifuges
- Horizontal Peeler Centrifuges
- Inverting Filter Centrifuges
- Tubular Filter and Ball Segment Valves
- Nutsche Filters and Filter Dryers
- Paddle Dryers
- Pan Dryers and Central Shaft Dryers
- Conical Screw Dryers

We are specialized in designing, manufacturing, selling and providing comprehensive aftersales service for high quality components and full systems for separating solids from liquids.

Our global sales and aftersales service network gives you the benefit of direct sales, dedicated sales organizations and well established sales partners in many different countries.

You can benefit from our professionalism, our staff expertise that has been built up over many years, and the financial strength of an international group coupled with the flexibility and rapid response of an small and medium sized enterprise.

From day one of testing your product on our laboratory equipment to the point at which you are ready to commission and launch the system, our team of experts will be there to support you all the way.

After these stages our aftersales service staff, with their many years of experience will take over to ensure that your production system is available in a consistent and sustainable way.

Complete system solutions comprising of a centrifuge, dryer and specific process equipment, with common control system can be integrated seamlessly for you by the Heinkel Group in our role as general supplier.

Your thorough understanding of both product and process combined with our long standing know-how in the areas of process engineering and the manufacture of process equipment and systems are the two essential ingredients for joint success.



### Pilot plant centrifuges

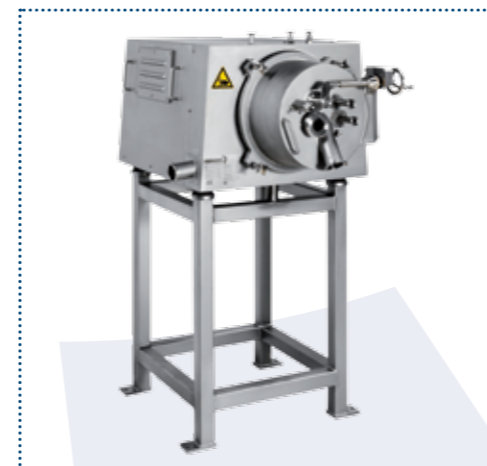
V 300 TP – V 500 TP

**The vertical centrifuges V 300 TP, V 400 TP and V 500 TP are designed for basic tests for a centrifugal separating technique.**

Key benefits:

- Mobile, compact design
- Easy “plug and use” installation
- Ideal for up scaling
- Very simple handling
- CIP cleaning
- Can be installed in an insulator/glovebox

Technical data	V 300 TP	V 400 TP	V 500 TP
Pilot plant centrifuges			
Drum diameter (mm)	300	400	500
Drum depth (mm)	150	250	300
Filter surface area (m <sup>2</sup> )	0.141	0.314	0.47
Nominal capacity (l)	4.9	16	30
Max. filling weight (kg)	8.0	20.0	36
Max. rotational speed (rpm)	3500	2000	3000
Centrifuge index (x g)	2055	900	2550
Weight (kg)	450	550	1300



### Pilot plant centrifuges

H 300 P – H 500 P

**The horizontal peeler centrifuges from series H 300 P, H 400 P and H 500 P are designed specifically for demanding operation in laboratories, testing applications and small-batch production.**

Key benefits:

- Compact design
- Easy “plug and use” installation
- cGMP compliant
- Fully automated operation
- Ideal for up scaling

Technical data	H 300 P	H 400 P	H 500 P
Pilot plant centrifuges			
Drum diameter (mm)	300	400	500
Drum depth (mm)	125	200	250
Filter surface area (m <sup>2</sup> )	0.117	0.251	0.39
Nominal capacity (l)	4.9	10	20
Max. filling weight (kg)	6.2	12.5	25
Max. rotational speed (rpm)	3450	3000	2670
Centrifuge index (x g)	2000	2015	2000
Weight (kg)	750	1250	3900



## Horizontal peeler centrifuges

H 630 P – H 1250 P

**Inadequate hygiene on machines and equipment in applications closely associated with pharmaceuticals can result in health risks due to product contamination. This is why our horizontal peeler centrifuges are designed in such a way that they are easy to clean and inspect.**

Key benefits:

- Wide range of applications
- Highest standards regarding cGMP
- Fully-automated, validated CIP cleaning
- All components in the processing chamber can be inspected
- Cleanroom installation
- General materials and seal materials are suitable for pharmaceutical use
- Potential sources of contamination are avoided

The centrifuge has a housing that can be swung open automatically; when open, access to the process chamber is unrestricted, meaning that all its components can be inspected thoroughly. The inside of the centrifuge is designed with the minimum of dead space and has highly polished surfaces so that no more than minimal quantities of the product are deposited. The pneumatic removal of the residual layer ensures that the product is fully discharged. A fully-automated CIP system, complemented if necessary by flooding of the filter housing, ensures that all the services in the product chamber are cleaned effectively. The cGMP-compatible design of this series is subject to a continuous improvement process.

**Meet the highest standards for reproducible quality**

The Horizontal peeler centrifuges are the preferred choice of our customers and are used in situations where the utmost degree of reproducible quality of high-value substances is required. Since physiologically active fine chemicals are often involved, our Horizontal peeler centrifuges are designed in such a way that there cannot be any contact between the human operator and the substances being produced.

**Efficient CIP systems**

Our horizontal peeler centrifuges meet all the requirements of the pharmaceutical industry. Efficient CIP systems enable cleaning to be carried out with the housing closed, and the way in which the housing can be swung right open means that the surfaces that come into contact with the product can be inspected. For this reason our Horizontal peeler centrifuges are also often used in synthesis plants where the product is changed frequently.

**Maximum safety**

Because of their enclosed design and fully-automatic, uninterrupted operation, these Horizontal peeler centrifuges meet the highest safety standards and ensure the maximum degree of safety for operators, environment and product alike.

Technical data	H 630 P	H 800 P	H 1000 P	H 1250 P
Horizontal peeler centrifuges				
Drum diameter (mm)	630	800	1000	1250
Drum depth (mm)	315	400	500	800
Filter surface area (m <sup>2</sup> )	0.62	1.00	1.60	2.86
Nominal capacity (l)	42	85	170	303
Max. filling weight (kg)	53	106	213	473
Max. rotational speed (rpm)	2400	1800	1500	1180
Centrifuge index	2000	1450	1250	1005
Weight (kg)	4300	4900	10000	16700



## Inverting filter centrifuges

HF 300.I – HF 1300.I

**HEINKEL developed the inverting filter centrifuge in the early 1970s and can now look back on many years of experience. At that time the technology for automated product output with no residual layer and gentle on the grain was new; it is now time-proven, accepted and highly regarded in all application areas of the pharmaceutical industry.**

Key benefits:

- Dependable discharge of solid material with no residual layer
- Clean filter cloth for the next filling process
- Discharge gentle on the grains, preserving the crystal structure
- Very simple 'through-the-wall' installation
- Very homogeneous cake build-up
- Homogeneous drainage results
- Filling process optimized by the control system, dependent on the product's drainage properties
- High rotational speeds during spinning with maximum drum load possible
- Centrifuging process can be regulated flexibly and adjusted automatically according to product properties
- Homogeneous washing results through the even cake structure
- Comparatively low consumption of wash medium and consequently low volume of wash filtrate to be processed
- No manual emptying of the drum or opening of the process housings necessary

**PAC system**

For products with a large proportion of fine material < 20 µm and high filtration resistance the centrifuge drum can be pressurized with a gas pressure of up to 6 bar in order to combine the process engineering advantages of centrifugation with the possibilities offered by differential pressure filtration.

The residual moisture in hard-to-filter products can be reduced by a further 10–20% in comparison with pure centrifugation.

Pressure added centrifugation can also be used for drying solid matter to a residual moistness < 1%. This drying method is used most importantly in situations where valuable, toxic or extremely small quantities of product are being processed with no transfer of solids between the filtration and drying apparatus.

Technical data	HF 300.I	HF 450.I	HF 600.I	HF 800.I	HF 1000.I	HF 1300.I
Inverting filter centrifuges						
Drum diameter (mm)	300	450	600	800	1000	1300
Filter surface area (m <sup>2</sup> )	0.1	0.31	0.41	0.85	1.26	2.0
Nominal capacity (l)	6.5	26	52	120	200	350
Max. rotational speed (rpm)	3000	2300	1940	1600	1270	1000
Centrifuge index (x g)	1500	1322	1255	1138	900	722
Weight (kg)	1400	3250	3500	6200	8900	10700
Length (mm)	2025	3095	3095	4080	5090	5950
Width closed (mm)	930	1605	1605	2065	2290	2600
Width open (mm)	1170	2450	2450	3190	3735	4600
Height (mm)	1065	1735	1735	1900	2550	3300





## Top-discharge centrifuges

V 630 TP – V 1250 TP

Conventional HEINKEL top-discharge centrifuges represent a cost-effective alternative for pharmaceutical production. The centrifuge is easy to adapt according to product properties and is therefore suitable for plants producing a large number of different products in batches that vary in size from small to large.

Key benefits:

- Flexible adaptation for difficult to filter products
- Filter cake discharged fully (none lost)
- Gentle discharge of solid material, no particle damage
- Automated CIP cleaning
- Easy access to all product contact parts
- High washing and extraction performance
- Easy to assemble

Technical data	V 630 TP	V 800 TP	V 1000 TP	V 1250 TP
Top-discharge centrifuges				
Drum diameter (mm)	630	800	1000	1250
Drum depth (mm)	400	630	630	630
Filter surface area (m <sup>2</sup> )	0.80	1.58	1.98	2.48
Nominal capacity (l)	63	160	250	400
Max. filling weight (kg)	80	200	315	500
Max. rotational speed (rpm)	1900	1500	1200	950
Centrifuge index	250	1000	800	630
Weight (kg)	1200	1700	2400	3500

## After Sales Service

### Product Support

#### Wearing and spare parts

Worldwide delivery ex stock and web-shop for orders

#### Engineering support

Solutions for all mechanical, control and process engineering questions

#### Repairs

Worldwide on-site within 24/7

### Solution Support

#### Conversions and retrofits

ATEX upgrades, cGMP upgrades, retrofitting of pressurised filling pipes, controllers, displays, drive system replacements, safety services

#### Maintenance contracts

After sales service with individually specified scope

#### Process engineering optimisation

Optimisation of comprehensive process engineering processes

### Sales Support

#### Installation / commissioning

On-site installation  
Mechanical and electrical testing, test runs

#### Training

Staff training on operation, control and troubleshooting

#### Maintenance

Remote maintenance and on-site maintenance

### Business Support

#### Used machines

Partial or full refurbishing of used machines from all manufacturers

#### Rental and pilot systems

for rapid compensation of broken down systems and basic tests

#### Financing

Hire-purchase, leasing



Service to us means doing everything so that your centrifuge, dryer, mixer and fittings will work reliably and safely for producing an optimum product.

We feel responsible for our machines and systems - from initial consulting through delivery, installation and maintenance up to the end of the entire life cycle.

Through the partnership-like cooperation with our customers around the world we jointly provide top performance, contributing significantly to your success.

In a world in which markets and people move together even more closely, our group of companies can assist you by providing top quality products, services and staff.

As one of the international leading vendors we endeavour to be as close as possible to our customers thereby ensuring utmost satisfaction.

Firmly embedded on all levels of our company, we endeavour to provide high quality, accuracy and reliability every day.

Our staff is continually trained so as to meet all aspects of the high process engineering and statutory requirements of the pharmaceutical, chemistry and metal industries.