

Vacuum dissolvers for laboratory and pilot plant

Dispersion process under vacuum

During the dispersion process air is often trapped in the millbase. If the millbase viscosity is low enough the air will often escape naturally by itself during or after the dispersion process. The use of anti-foam additives can also help.

In industry today it is a requirement of many dispersed products to be free of air bubbles. Trapped air affects filling and end product performance and can be a serious problem. In these cases vacuum can be used to eliminate or to reduce the amount of trapped air in higher viscosity products.

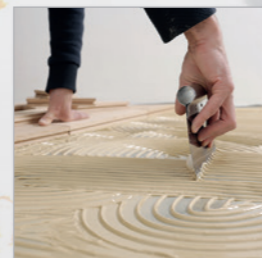
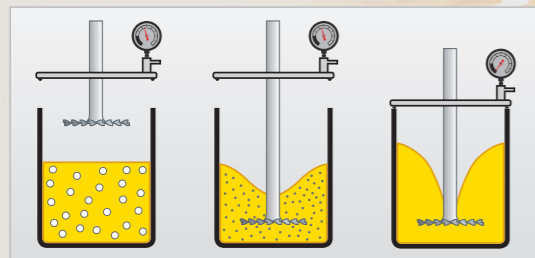
Then, the dispersion process must be performed under vacuum to avoid air inclusions and micro bubbles. In addition, the use of a scraping system is often required to move the millbase from the container wall and bring it to the middle of the container. The improved product circulation allows the air to be removed more effectively.

Major advantages of a dispersion under vacuum:

- high-viscosity systems can largely be produced without air bubbles
- a formation of foam is largely reduced especially in the case of aqueous system
- products which react with oxygen or air humidity can be produced under vacuum without any problems
- the product quality (fineness) can often be improved significantly by vacuum dispersion

Do you want to know more about the advantages of dispersions under vacuum? We should be pleased to advise you! Please visit us in our excellently equipped laboratory and pilot plant for a trial with your own products. Our experienced engineers are looking forward to your visit:

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Product overview of the DISPERMAT® vacuum dissolvers

CDS vacuum system

The CDS vacuum dispersion system for the DISPERMAT® dissolvers.

- single-walled or double-walled (temperature-controlled)
- height adjustment of the dissolver disc during vacuum operation

Product volume:
0.1 – 18 litres

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CHS vacuum system

The CHS vacuum dispersion system with a mobile system carriage for single-walled steel sheet containers, hobbocks and customized dispersing containers.

- adaptable to many devices
- suitable for: single-walled steel sheet containers, hobbocks, customized dispersion containers
- height adjustment of the dissolver disc during vacuum operation

Product volume:
2 – 45 litres

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DISPERMAT® VE

Dispersion under vacuum with any containers in a vacuum chamber.

- C, C-EX and M-EX technology
- ATEX explosion-protection,
- scraper system for high-viscous products
- height adjustment of the dissolver disc during vacuum operation

Product volume: 0.2 – 7 litres
Power: 2.2 kW

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DISPERMAT® VL

Dispersion under vacuum in single-walled and double-walled vacuum containers

- C, C-EX and M-EX technology
- explosion-protection according to ATEX,
- scraper system for high-viscous products
- height adjustment of the dissolver disc during vacuum operation

Product volume: 0.3 – 80 litres
Power: 2.2 kW – 7.5 kW

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CDS vacuum dispersion system

Modular vacuum system for DISPERMAT® dissolvers

Option: single-walled or double-walled container holder

The dispersing process can be observed through the large glass cover (CDS 250 to CDS 5000). [D]

The CDS 10000 to CDS 25000 vacuum systems have an aluminium cover with a large inspection glass.

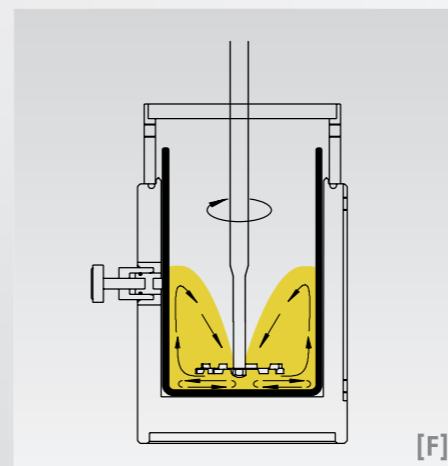
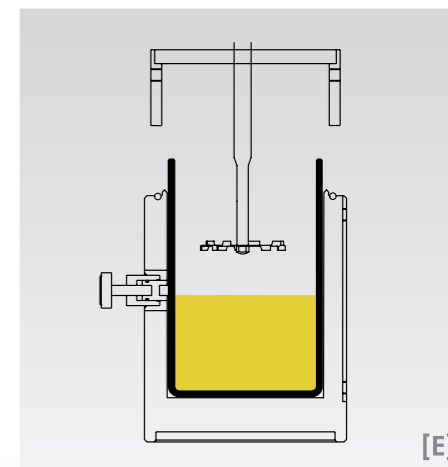
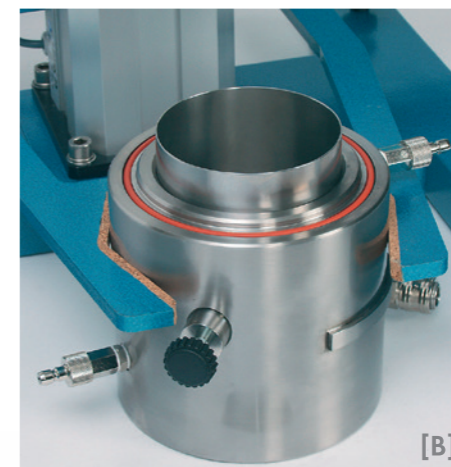
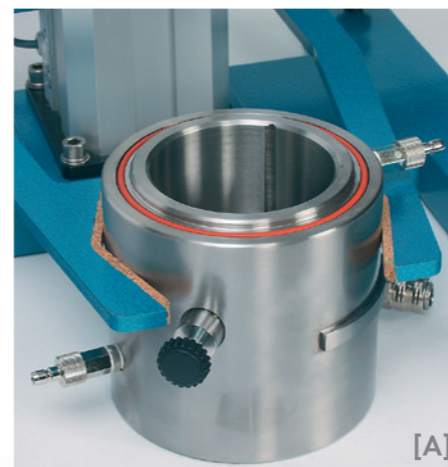
The CDS systems 250 to 5000 are available with a single or double-walled (temperature-controlled) container holder. [A] From the CDS 10000 vacuum system single or double-walled containers with an aluminium cover are used.



The CDS vacuum system is compatible with the DISPERMAT® quick action coupling system.

The container holder is aligned centrally and fixed safely by the container clamping device. [A]

DISPERMAT® CA40 with the CDS 500 vacuum system



Dispersion under vacuum with the modular CDS dispersion system

The CDS dispersion system enables the dispersion process to be carried out in single-walled containers in a closed system under vacuum. The single-walled containers are placed into the container holder and secured in place. If the dispersion process needs to be cooled a double-walled container holder is available. After the liquid and powder components have been added, the glass cover can be lowered onto the container holder over the vacuum shaft guide tube. The actual dispersion process can now be run and the product is set into a turbulence free rolling motion.

If vacuum is required the vacuum pump can be switched on. The impeller height can easily be raised or lowered during the dispersion process even under vacuum. The dispersion process can be observed clearly through the large glass cover.

The CDS system can be equipped with a particularly bright LED light as well as an integrated infrared temperature measurement system.

CDS vacuum system type	Container capacity, litre	Container size Ø x height, mm	Product volume litre	Recommended DISPERMAT® dissolvers type
Single- or double-walled holder with a glass cover				
CDS 250	0.25	65 x 85	0.1 - 0.2	LC55 - LC220-6 CV-PLUS CN10 - CN40 CA AE01 - AE06 LC-EX AE01-EX - AE06-EX R30 R11
CDS 500	0.5	80 x 100	0.2 - 0.3	
CDS 1000	1	100 x 130	0.3 - 0.7	
CDS 2000	2	120 x 180	0.6 - 1.4	LC110-06 - LC220-6 CV4-PLUS CN10 - CN40 CA40 - CA60 AE01 - AE06 LC75-EX AE01-EX - AE06-EX R11
CDS 3000	3	140 x 200	0.9 - 2.1	LC110-12 - LC220-6 CV4-PLUS CN10 - CN80 CA - CA60 AE01 - AE06 AE01-EX - AE06-EX R11
CDS 5000	5	180 x 200	1.5 - 3.5	LC110-12 - LC220-6 CN CA - CA60 AE01 - AE06 AE01-EX - AE06-EX R11
Single- or double-walled containers with an aluminium cover				
CDS 10000	10	240 x 240	3 - 7	LC110-12 - LC220-06 CN CA40 - CA60 AE AE-EX R11
CDS 20000	20	280 x 280	6 - 14	LC110-12 - LC220-06 CN CA60 AE03 - AE14 AE03-EX - AE13-EX
CDS 25000	25	320 x 320	8 - 18	LC220-6 CN40 - CN120 AE06 - AE14 AE06-EX - AE13-EX



CHS vacuum dispersion system

Modular vacuum system
with a mobile vacuum chamber

Modular CHS vacuum dispersion system with a mobile vacuum chamber for single-walled steel containers, hobbocs and customized dispersion containers.

The CHS vacuum accessory can be used with containers from 7 - 60 litres. The system comprises of three parts: dissolver shaft and vacuum cover, the outer vacuum chamber and a moveable base.

The customer's own container is simply secured in position on the moveable base and the vacuum chamber placed onto the base. The base can be moved under the dissolver and the vacuum cover lowered into position.

To optimise the product flow during operation the dissolver disc height is fully adjustable. There is a powerful LED lamp and a viewing window.

For high-viscosity and non-flowing materials an optional high torque scraper system is available. Product temperature can be continuously measured with a PT100 temperature sensor (optional).

The highly flexible CHS vacuum system can also be used for stirring, mixing, homogenizing and fine grinding applications.

The unique CHS concept means that there is no container cleaning required between batches, saving time and increasing productivity.

The CHS30 system will accept standard hobcock type 30 litres thin wall containers. It is also available in a larger 60 litres size as well as customer specific sizes.

An ATEX certified explosion-proof design is also available.

Vacuum cover with an inspection glass, high intensity LED light and vacuum connection. An optional scraper system is available.

Mobile vacuum system for single-walled steel sheet containers, hobbocs and customer specific containers. The dispersion container is simply placed on the mobile base. Then, the CHS vacuum container is put on top. The system is now ready for operation.

The vacuum cover and the dissolver shaft are directly connected to the DISPERMAT® dissolver by means of a convenient quick action coupling system.

The height of the dispersion tool can be adjusted during vacuum operation. If required, the dissolver disc can be replaced simply and quickly.

The DISPERMAT® ZBS central container clamping system can be used to centrally align and clamp the mobile vacuum unit.

Moveable vacuum base.

DISPERMAT® AE12 with the CHS30 vacuum dispersion system.



CHS vacuum system type	Container capacity litre	Product volume litre	Recommended DISPERMAT® dissolvers type
CHS 30	7 - 30	5 - 25	CN50 - CN120 AE07 - AE14 AE07-EX - AE13-EX
CHS 60	15 - 60	5 - 50	CN90 - CN120 AE11 - AE14 AE11-EX - AE13-EX



DISPERMAT® VE

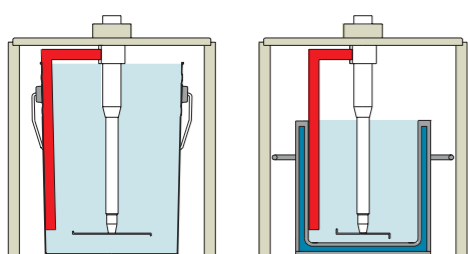
Dispersion under vacuum with various containers in a vacuum chamber

The DISPERMAT® VE is a vacuum dissolver for single-walled and double-walled containers as well as disposable containers with a capacity of 0.25 to 10 litres

The DISPERMAT® VE is a vacuum dissolver which is suitable both for laboratory applications and for larger batches. The special feature of the DISPERMAT® VE is that it is not necessary to fill the product to be dispersed into a vacuum tight container. Instead, the dispersion process can be performed under vacuum in any containers. Containers may be single-walled or double-walled, and even the use of thin-walled disposable containers is possible without any problems. The dispersing tool can be adjusted in height during operation.

Scraping system for dispersion of high-viscosity products

The DISPERMAT® VE vacuum dissolver can be equipped with a scraping system for high-viscosity and non fluid substances. The scraping arm can be replaced very easily to suit different diameter containers.



C – technology



- **DISPERWHEEL® speed adjustment**
infinitely variable speed adjustment with rotary pulse encoder
- **Large color display**
indications of speed, torque, power, product temperature, timer, peripheral speed and height of the dispersing tool

- **Repeatability**
dispersion method: constant speed or constant mechanical power input for optimum repeatability, temperature-based dispersing
- **Data recording**
recording of the process parameters with graphical indication
- **Switch off parameters**
switch off function for temperature, speed, torque and power
- **Database**
100 individual PRESET configurations for H1, H2, speed, time, switch off parameters, ramp function, etc.
- **DISPERSAFE®**
TÜV-certified safety module for convenient use of variable container sizes without limit switches or mechanical contraption.
- **Power compensation**
net power calibration
- **Height measurement**
adjustable working range for different container sizes
- **Connectivity**
USB, Wi-Fi, LAN

VACUUM TECHNOLOGY
dispersing under vacuum

SCRAPER TECHNOLOGY
Option: scraper for highly viscous products

PROCESS CONTROL C-TECHNOLOGY
repeatable dispersion results

WORK SAFE DIRECTIVE 2006/42/EC
integrated safety equipment

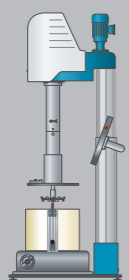
DISPERWHEEL® SPEED ADJUSTMENT
with rotary pulse encoder

HEIGHT ADJUSTMENT ELECTRIC
easy handling, functional design

HIGH VISCOSITY PRODUCTS
dispersing highly viscous substances

DISPERSAFE® TÜV CERTIFIED
safety module (EN ISO 13849-1)

MADE IN GERMANY SINCE 1972
quality, precision and durable technology



DISPERMAT® VE10
H2BF STAND

Dimensions W x H x D	81 x 190 x 80 cm
Height adjustment	electric
Weight	200 - 250 kg



DISPERMAT® type	Power kW	Speed rpm	Torque Nm	Product volume litre
VE10	2.2	0 - 6000	7.4	0.2 - 7



DISPERMAT® VL

Dispersion under vacuum with single and double-walled vacuum containers

Vacuum dissolver with single- or double-walled vacuum containers from 1 to 100 litres

The DISPERMAT® VL is a vacuum dissolver for laboratory and pilot plant operation. It is ideal for R&D work as well as for production of larger batches.

The DISPERMAT® VL is very easy to use. The stand has an electric height adjustment; the vacuum container is securely mounted on the base plate by a quick release fixture. The height of the milling tool can be adjusted during the dispersion process. The DISPERMAT® VL is also available in an explosion-proof version according to ATEX.

The single and double wall temperature-controlled vacuum containers are made of stainless steel. A viewing glass, lamp, vacuum connection, filling opening and exhaust are all located in the stainless steel vacuum cover. The DISPERMAT® VL is also available with an optional scraper system.

Summary of the most important features:

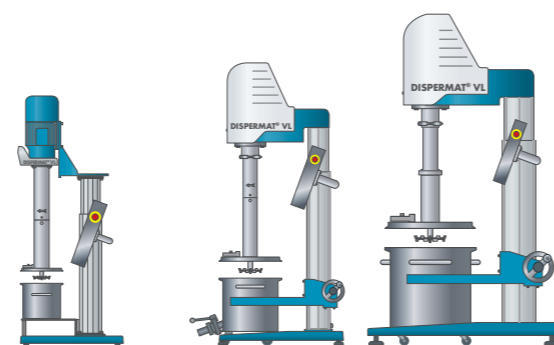
- height adjustment of the dissolver disc even during vacuum operation
- stand with electric height adjustment
- double wall (temperature-controlled) and single wall vacuum containers made of stainless steel
- vacuum cover with viewing glass, LED illumination, filling opening
- options: explosion-proof (ATEX), scraper system, hopper

C and C-EX – technology



- **DISPERWHEEL® speed adjustment**
infinitely variable speed adjustment with rotary pulse encoder
- **Large color display**
indications of speed, torque, power, product temperature, timer, peripheral speed and height of the dispersing tool

- **Repeatability**
dispersion method: constant speed or constant mechanical power input for optimum repeatability, temperature-based dispersing
- **Data recording**
recording of the process parameters with graphical indication
- **Switch off parameters**
switch off function for temperature, speed, torque and power
- **Database**
100 individual PRESET configurations for H1, H2, speed, time, switch off parameters, ramp function, etc.
- **DISPERSAFE®**
TÜV-certified safety module for convenient use of variable container sizes without limit switches or mechanical contraption.
- **Power compensation**
net power calibration
- **Height measurement**
adjustable working range for different container sizes
- **Connectivity**
USB, Wi-Fi, LAN



	DISPERMAT® VL1-5 H2L STAND	DISPERMAT® VL10 - VL35 H2SF STAND	DISPERMAT® VL50 - VL100 H3S STAND
Dimensions W x H x D	70 x 142 x 55 cm	90 x 210 x 70 cm	120 x 237 x 105 cm
Height adjustment	electric	electric	electric
Weight	87 - 101 kg	190 kg	350 kg

DISPERMAT® VL1-5

- +** **ACCESSORIES SR**
Flexible. Powerful. Innovative.
- Ex** **ATEX ZONE 0/1**
Option: explosion-protection according to 2014/34/EU
- V** **VACUUM TECHNOLOGY**
dispersing under vacuum
- S** **SCRAPER TECHNOLOGY**
Option: scraper for highly viscous products
- P** **PROCESS CONTROL C-TECHNOLOGY**
repeatable dispersion results
- W** **WORK SAFE DIRECTIVE 2006/42/EC**
integrated safety equipment
- D** **DISPERWHEEL® SPEED ADJUSTMENT**
with rotary pulse encoder
- H** **HEIGHT ADJUSTMENT ELECTRIC**
easy handling, functional design
- H** **HIGH VISCOSITY PRODUCTS**
dispersing highly viscous substances
- S** **DISPERSAFE® TÜV CERTIFIED**
safety module (EN ISO 13849-1)
- M** **MADE IN GERMANY SINCE 1972**
quality, precision and durable technology



DISPERMAT® VL1-5 with scraping system

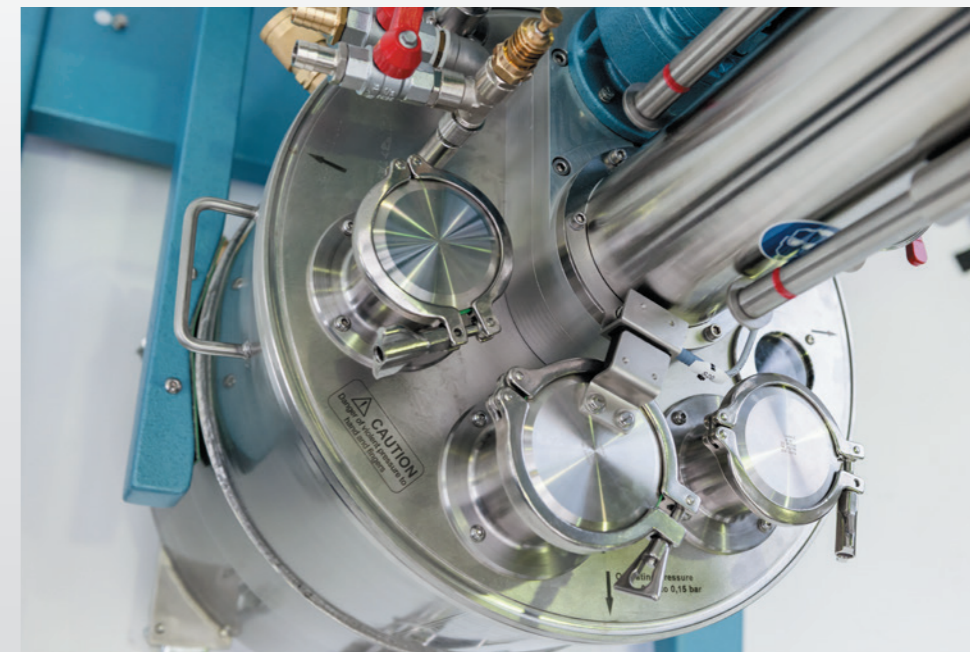
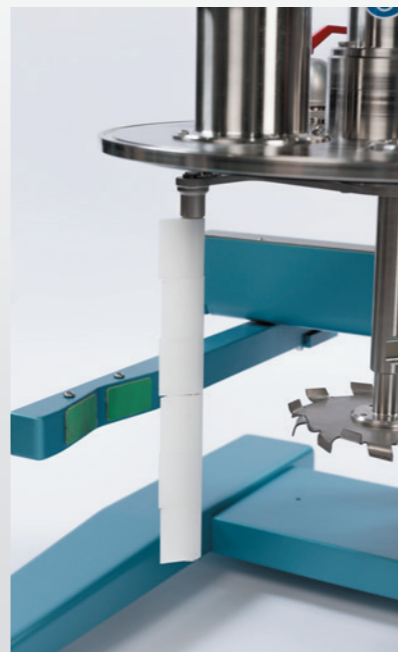
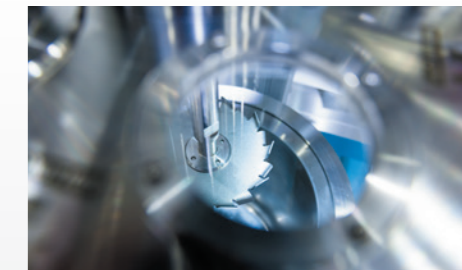
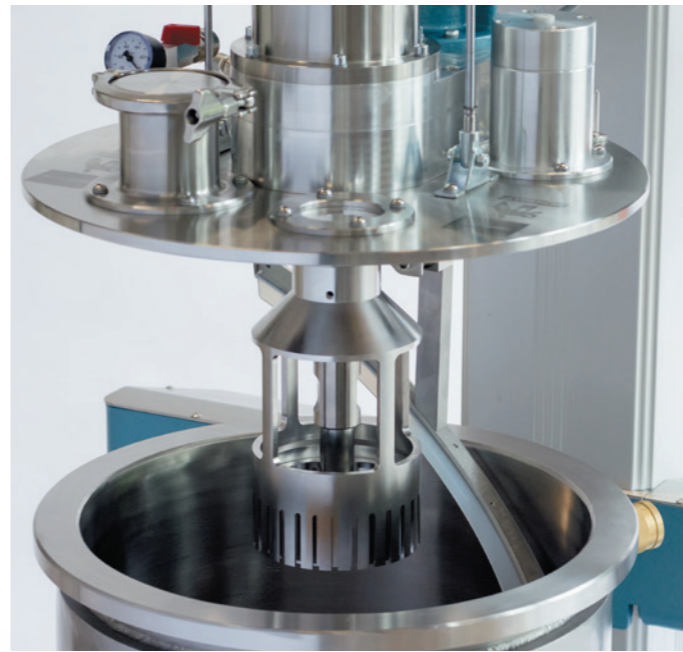
DISPERMAT® type	Power kW	Speed rpm	Torque Nm	Container capacity litre	Product volume litre	SR rotor-stator litre [page 58]
VL1-5	2.2	0 - 6000	7.4	1	0.3 - 0.7	on request
VL1-5	2.2	0 - 6000	7.4	2	0.5 - 1.5	on request
VL1-5	2.2	0 - 6000	7.4	3	0.8 - 2.2	on request
VL1-5	2.2	0 - 6000	7.4	5	1.5 - 4	on request

DISPERMAT® VL10 – VL100

DISPERMAT® VL10 – VL100 vacuum dissolvers

The DISPERMAT® VL10 to VL100 is used in pilot plant and in small scale production for larger volumes of up to 80 litres. Since the applications have often to meet customer specific requirements, the covers can be customized with scrapers, temperature measurements etc..

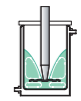
- ACCESSORIES SR**
Flexible. Powerful. Innovative.
- ATEX ZONE 0/1**
Option: explosion-protection according to 2014/34/EU
- VACUUM TECHNOLOGY**
dispersing under vacuum
- SCRAPER TECHNOLOGY**
Option: scraper for highly viscous products
- PROCESS CONTROL C-TECHNOLOGY**
repeatable dispersion results
- WORK SAFE DIRECTIVE 2006/42/EC**
integrated safety equipment
- DISPERWHEEL® SPEED ADJUSTMENT**
with rotary pulse encoder
- HEIGHT ADJUSTMENT ELECTRIC**
easy handling, functional design
- HIGH VISCOSE PRODUCTS**
dispersing highly viscous substances
- DISPERSAFE® TÜV CERTIFIED**
safety module (EN ISO 13849-1)
- MADE IN GERMANY SINCE 1972**
quality, precision and durable technology



DISPERMAT® VL75 with scraping system and C - technology

The high quality DISPERMAT® VL vacuum dissolvers are suitable for many applications:

- Paints and varnishes
- Electronics
- Pigments and additives
- Adhesives
- Printing inks
- Coatings
- Chemistry
- Pharmacy and cosmetics
- Plastics
- Microbiology
- Construction chemistry
- Agrochemicals



DISPERMAT® type	Power kW	Speed rpm	Torque Nm	Container capacity litre	Product volume litre
VL10	4	0 - 6000	13.7	10	4 - 7
VL15	4	0 - 6000	13.7	15	5 - 12
VL25	4	0 - 3000	27	25	10 - 20
VL35	4	0 - 3000	27	35	10 - 25
VL50	5.5	0 - 3000	27	50	15 - 35
VL75	5.5	0 - 3000	37	75	30 - 60
VL100	7.5	0 - 3000	50	100	40 - 80

SR rotor-stator litre [page 58]
on request
on request
on request
on request
on request
on request
on request



Vacuum pumps for DISPERMAT® dissolvers in the laboratories or pilot plants



MZ 2C NT +2AK vacuum pump

Oil-free chemical vacuum system with a condensate separator on the suction and pressure side. This especially low-noise diaphragm pump provides a high final vacuum and excellent chemical resistance. ATEX conformity: II 3G IIC T3 X Internal Atm. only

Recommended for:

- CDS 250 to 20000
- VL1-5 up to VL15
- LH10/20
- Applications up to 20l container, with gas ballast

Special benefits:

- Oil-free vacuum
- High suction capacity near the final vacuum
- Excellent chemical resistance
- Very low-noise and low-vibration operation
- Condensate separator on the suction and pressure side
- Low maintenance requirements and high service life

Suction capacity (at 60 Hz)	Final vacuum, absolute	Voltage supply	Sound pressure level:	Dimensions L x W x H	Weight
2.3 m ³ /h	7 mbar	230V, 50-60 Hz	45 dBA	319 x 243 x 309 mm	13.6 kg

Advanced vacuum pumps for multiple applications

RE 6 vacuum pump

Powerful and compact vane pump for a high final vacuum.

Recommended for:

- CDS 250 to 20000,
- VL1-5 up to VL15
- Applications up to 60l container, limited or without gas ballast

Special benefits:

- High final vacuum
- Long oil change intervals and simple maintenance
- High suction capacity at a low suction pressure
- High tolerable water vapour inlet pressure
- Vacuum tight deactivation
- Compact design



Suction capacity (at 60 Hz)	Final vacuum, absolute	Voltage supply	Sound pressure level:	Dimensions L x W x H	Weight
6.8 m ³ /h	0.1 mbar	230V, 50-60 Hz	50 dBA	370 x 142 x 207 mm	15.4 kg



MZ 2C EX vacuum pump

Oil-free ATEX chemical diaphragm pump vacuum with an excellent chemical resistance and gas ballast device as a separate inert gas connection.

ATEX conformity: II 2G IIC T3 X in the pump chamber
II 2G IIB T4 X in the outer chamber with inert gas flushing
II 3G IIB T4 X in the outer chamber without inert gas flushing

Recommended for:

- CDS 250 to 20000
- VL1-5 up to VL15
- LH10/20
- Applications up to 20l container, with gas ballast

Special benefits:

- ATEX explosion-protection
- Integrated overcurrent and overtemperature protection
- Oil-free vacuum
- Excellent chemical resistance

Suction capacity (at 60 Hz)	Final vacuum, absolute	Voltage supply	Sound pressure level:	Dimensions L x W x H	Weight
1.9 m ³ /h	12 mbar	230V, 50 Hz	50 dBA	337 x 287 x 251 mm	21.6 kg

PC3001 VARIOpro vacuum pump

Advanced vacuum pump with an integrated controller for exact control of the desired vacuum. This especially compact and light device ensures high evaporation rates for short process times and is equipped with a condensate separator on the suction and pressure side.

Recommended for:

- CDS 250 to 20000
- VL1-5 up to VL15
- LH10/20
- Applications up to 20l container, with gas ballast

Special benefits:

- Easy-to-operate vacuum controller
- Fully automatic operation: the optimum demand based vacuum at the push of a buttons
- Uniformly high vacuum, shorter process times
- Very compact and light design
- Very low-noise and low-vibration operation
- Condensate separator on the suction and pressure side



Suction capacity (at 60 Hz)	Final vacuum, absolute	Voltage supply	Sound pressure level:	Dimensions L x W x H	Weight
2.0 m ³ /h	2 mbar	230V, 50-60 Hz	42 dBA	300 x 306 x 400 mm	7.7 kg