

# :: Enjoy the Difference

Screening & Separating Systems





# :: Your tasks are our challenges and our solution is your additional benefit.

For more than seven decades we are developing and producing different types of screening machines and vibrating conveyors. As an independent enterprise we remain true to our principles: Only continuous further development of solution-compatible products will accomplish additional benefit for the client.

Due to our uncompromising quality demand we are updating the definition of common criteria. We are using the actual possibilities to realize everyday under long-term prospect the maximum of efficiency and maintainability of our products. Thereby, we understand ourselves as a fair and reliable partner.



As an international company we know

the requirements of different industrial sectors – to submit the best solution therefor is at the same time challenge and demand for us. At least this is the merit of our employees who adopt every project, every development, every solution and every machine as their own.

Enjoy the Difference
Sigurd Schütz
Managing Director



:: Motivated and committed.



# :: Experts ensure the success of tailor-made solutions.

Clearly structured project development and a holistic method of approach care for exemplary functionality and convincing profitability. The experience of the best specialists is user-friendly dovetailed to the management of complex detailed tasks.

The knowledge and the competence of our engineers as well as the innovative capacity will cause excellent results and will guaranty the success of the product.





:: Enjoy the Difference.

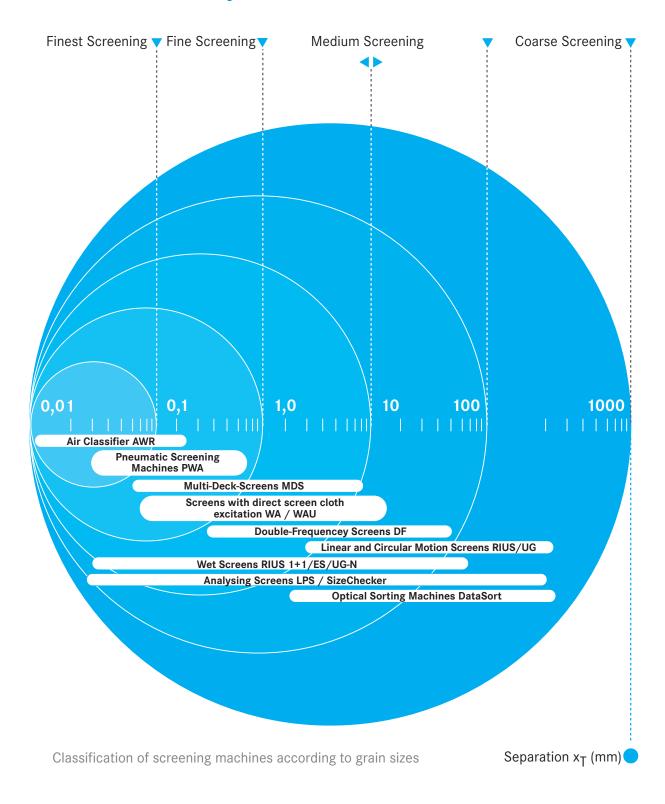


# :: We respect details.

Clear structures, fresh and target-oriented thinking – this makes RHEWUM to a competent and authentic partner solving customer's requirements in an economic and effective way. Small-sized, client-near structures, supported by the most modern technology are resulting in fast and customer-oriented acting. Certainly, our attention is to find the target-oriented separation solution realized by detailed and foresighted technical planning and use of most appropriated materials in the hands of experienced specialists. Thereby, certainly factors like future follow-up costs, usability as well as foreseeable environmental specifications will be respected.



# :: Overview on products.





# :: Tailor-made products.

To answer on different user requirements, we are producing a variety of solution-oriented machines to classify bulk products in the range of dry and wet separation. Common denominator: RHEWUM is supplying solutions with long-lasting prospect, planned in detail, optimally realized.

We are producing for your future. The most significant advantages:

- :: An intelligent operation planning to minimize future production costs
- :: Use of best adapted separation methods and procedures
- :: Energy and cost-saving benefit-oriented solution

RHEWUM: pathbreaking in regard of separation solutions with highest efficiency.









# RHEWUM®

:: Enjoy the Difference

### :: Screening machines with direct excitation of the screen cloth

#### :: WA/WAU/WAF

RHEWUM screening machines type WA and WAU are inclined screens with direct excitation of the screen cloth. The machine housing itself is not moving therefore no dynamic loads are transferred into the surrounding building. Besides the energy consumption is reduced due to this design. The direct excitation of the screen cloth leads to very high acceleration of the material to be screened. This enables a sharp classification even of difficult to screen materials. The material transport over the machine is carried out by the inclination of the screen in combination with the loosening of the material which is effected by the vibration of the screen cloth.

The vibration of the screen cloth is generated by outside mounted drives and transferred to the screen cloth via swivel-ling axes and knocker shafts. Screening machines type WA are generating the vibration by means of electromagnetic vibrating heads, screening machines type WAU by means of small out-of-balance motors. Due to the high frequency of 50 Hz and the high acceleration of the screen cloth up to 15 G resulting from the drive principle a fast segregation of the material is given: Because of their higher mass larger particles are thrown higher when the knocker shafts are getting in contact with the screen cloth. The fine and difficult to screen particles stay nearer to the screen cloth and are classified very efficient due to having more contacts to the screen cloth. The direct excitation of the screen cloth furthermore reliably prevents the mesh from being blinded.



#### :: WA

- :: high-performance screening machine for the fine and middle separation range
- :: generation of vibration by electromagnetic vibrating heads
- :: available as single or multiple deck screening machine
- :: amplitude infinitely adjustable during operation separately for inlet and outlet area and every screen deck
- :: freely adjustable automatic cleaning sequence for the screen cloth
- :: inclination of the screen individually adapted to the requirements
- :: available with infinitely adjustable inclination as special design
- :: available with noise insulation if required



#### :: WAU

- :: high-performance screening machine for middle separation range
- :: generation of vibration by out-of-balance motors
- :: available as single or multiple deck screening machine
- :: amplitude of the motors free adjustable during stop of the machine
- :: freely adjustable automatic cleaning sequence for the screen cloth
- :: inclination of the screen individually adapted to the requirements
- :: available with infinitely adjustable inclination as special design
- :: low noise level



#### :: WAF

The screening machine type WAF is a combination of a direct excitated screen type WA and a linear motion vibrating conveyor. The linear motion is generated by two counter-rotating motors and ensures the transport of the material. The additional direct excitation of the screen cloth prevents the screen mesh from being blinded by clogged particles. By this combination of drive and excitation difficult to screen material which normally can not be screened on linear motion screens is classified precise and at high feed rates. In the range of fine and fines particles with the machine type WAF much better screening results are achieved than with conventional linear motion screens.

## :: Double-frequency screening machines

#### :: DF/ DFM/ DFE



#### :: **DF**

The double-frequency screening machine type DF is a high-performance screening machine for the classification of even difficult to screen materials at high feed rates. The screening machines type DF are mainly used in the medium separation range. This machine type provides the advantage of a static machine housing with fixed flange connections to the on- and off-going aggregates. The motors are maintenance friendly positioned outside of the machine housing.

The drive principle of the DF machine is based on the use of two out-of-balance motors generating a double-frequency vibration. At the inlet part the machine is

driven by a 6-pole motor, at the outlet part by a 4-pole motor. Therefore at the inlet a high amplitude is generated ensuring the segregation and transport of the material. The superimposed vibrations at the inlet and the outlet of the screening machine allow a very precise screening even of difficult to screen materials.. A very comfortable und easy change of the screen cloth and general maintenance of the screening machine type DF is provided by fold-away overflow chutes and outboard mounted motors.



#### :: DFM

The double-frequency screening machine type DFM is a dust-tight high-performance screening machine. It is characterized by its compact design. The machine has flexible collar seals at inlets and outlets and the motors are mounted outboard of the machine housing.

The drive principle as for the double-frequency screening machine type DF is based on two out-of-balance motors generating the double-frequency vibration. This ensures as for the machine type DF a very precise screening process even for difficult to screen materials.



#### :: DFE-Sizer

The DFE-sizer is a screening machine for the easy and fast screening of bulk solids at high feed rates. It is a very compact screening machine with several short screen decks and flexible collar seals at the inlets and outlets. The drive principle is based on two out-of-balance motors generating a linear vibration of the machine. By changing the unbalance setting the vibration can be adapted to the material very easily. The DFE-sizer is characterized by its very compact design and high specific feed rates.

# :: Multi-deck screening machines and linear motion screening machines

#### :: MDS/RIUS/UG



#### :: MDS

RHEWUM multi-deck screens type MDS are designed for a number of very sharp separations in one machine in the range of middle and fine screening. The material transport is based on the micro throwing principle. By using two counter-rotating out-of-balance motors generating a linear vibration the particles are thrown up and down several times. The particles are moving straight over the horizontal screen mesh which is reliably kept free by underneath positioned bouncing balls.

The modular system of the machine allows up to 19 screen decks being put together to one screen stack which leads to single machines with up to 120 m<sup>2</sup> screening area in total and up to 11 different fractions. Therefore if required various product fractions can be produced in a single machine without changing the screen mesh. Even at high feed rates very sharp separations can be reached.



#### :: RIUS

Screening machines type RIUS for screening in the medium separation range are available in two different designs. When choosing the design with one out-of-balance motor an elliptical movement of the screening machine is generated; the design with two counter-rotating out-of-balance motors leads to a linear motion screening machine. In both cases the motors can be mounted on the top or the bottom of the machine regarding to the conditions on site. This type of screening machine is characterized by its compact, simple and low maintenance design. Very sharp separations at high feed rates can be reached.



#### :: UG

The screening machine type UG is a linear motion screening machine. The drive principle is based on two top-mounted robust imbalance exciters. The exciters are driven by an electric motor connected via a cardan shaft. This type of screening machine is mainly used for the screening of bulk solids in the middle and coarse separation range. Screen cloth made of steel as well as polyurethane screens designed as insert bottoms or bar screens can be used.

The machine achieves high separation efficiency even at high feed rates and is particularly appropriate for difficult screening tasks and highly abrasive products

### :: Wet screening machines

#### :: RIUS 1+1/ES/UG-N



#### :: RIUS 1+1

The screening machine type RIUS 1+1 for wet screening is a linear motion screen driven by two counter-rotating out-of-balance motors. The machine design is characterized by one screen deck which is divided into two compact short screen areas connected in series. The material feed is divided onto these screening areas equally. The product discharge of overflow and underflow of the single screen areas are put together again. By this arrangement of two short screening machines in one housing the typical problem of the fast loss of carrier liquid on the screening surface is solved.

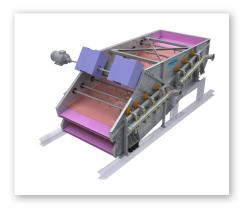
The overhead mounted freely accessible motors ensure an easy maintenance of the machine. The simple tensioning system enables an easy and fast change of the screen cloth. The screening machine type RIUS 1+1 is available in stainless steel or carbon steel with corrosion resistant coating.



#### :: ES

The de-watering screening machine type ES is driven by two counter-rotating out-of-balance motors generating a linear vibration for an efficient de-watering process. Screen cloth made of steel as well as polyurethane screens designed as insert bottoms can be used.

The motors are mounted freely accessible on top of the machine. The screening machine type ES is characterized by its compact, easy and therefore low-maintenance design. It ensures excellent de-watering results even for very fine products and high feed rates at the same time.



#### :: UG-N

The screening machine type UG-N is, like the screening machine type UG, a linear motion screening machine. As for the machine type UG the drive principle is based on two top-mounted robust imbalance exciters. The exciters are driven by an electric motor connected via a cardan shaft. This type of screening machine is mainly used for the screening of bulk solids in the middle and coarse separation range. Screen cloth made of steel as well as polyurethane screens designed as insert bottoms or bar screens can be used.

The screening machine type UG-N is equipped with a freely accessible water spraying system. The machine achieves a high separation efficiency even at high feed rates and is particularly appropriate for difficult screening tasks and highly abrasive products.

#### :: Feeder

#### :: AV/SV





The RHEWUM feeding and distributing troughs type AV or SV are prepositioned to the inclined RHEWUM screens. The feeders consist of a moving inner distributing plate and a static housing and ensure the equal and uniform distribution of the material on the whole machine width. The equal and uniform distribution is an essential requirement for a constant and reliable screening process.

The linear vibration of the inner part of the feeder is generated by two outboard mounted out-of-balance motors. The static housing provides the advantage that the feeder can be connected to the screening machine as well as to the upstream aggregates by fixed and dust-tight flange connections.

The feeders type SV are designed for a lateral feeding from the upstream aggregates, the feeders type AV are designed for central feeding. For the pre-separation of lumps the feeders can be equipped with a bar screen or a screen cloth.

# :: Conveying systems

#### :: RIU/RIM/ROU

RHEWUM vibrating conveyors type RIU and RIM as well as vibrating conveyor pipes type ROU are economic conveying systems for every kind of bulk solids. They are used for the continuous or intermittent conveying of material on relatively short distances. They are characterized by their simple but robust and reliable design due to which they present an all-round and cost-effective solution for various conveying tasks. An additional advantage are the maintenance-free drives which ensure a high availability of the system.



#### :: RIU

- :: for the use as vibrating conveyor or as hopper discharging conveyor
- :: high transportation velocity and gentle treatment of the material
- :: maximum conveying distance per conveyor 11 mm
- :: maximum conveying width 1.6 m
- :: driven by two counter-rotating out-of-balance motors generating a linear vibration
- :: easy and fast adjustment of the amplitude to the requirements of the material during stop of the machine
- :: available as open or covered design
- :: height differences can be bridged by connecting several vibrating conveyors



#### :: RIM

- :: for the use as vibrating conveyor or as hopper discharging conveyor
- :: high transportation velocity and gentle treatment of the material
- :: maximum conveying distance per conveyor 2.5 m
- :: driven by a magnetic drive generating a linear vibration
- :: infinite adjustment of the amplitude to the material during operation



#### :: ROU

- :: high transportation velocity and gentle treatment of the material
- :: maximum conveying distance per conveyor 8 m
- :: driven by two counter-rotating out-of-balance motors generating a linear vibration
- :: easy and fast adjustment of the amplitude to the material during stop of the machine
- :: maintenance friendly due to the independent exchange of the vibrating conveyor pipe itself and the drive unit

### :: Air classifier



#### :: AWR / ABX

The RHEWUM high-performance air classifiers type AWR and ABX are used for the sharp classification of fine and finest particles. They are particularly appropriate for classification processes where a high feed rate and a very fine separation cut at the same time are required. The various series enable feed rates from 2 to 30 t/h. Common separation cuts are in the range between 20 and 200  $\mu m$ . The geometry is flow-optimized by finite-element-simulation and leads to a reduction of operation costs by increasing the energy consumption and the wear. The flow-optimized geometry leads to decreased pressure losses and this means a higher economic efficiency.

The second main parameter for a precise classification result is the dispersion of the material before it enters the classifying area. The cascading dispersion on several dispersers is a main advantage of the design of this type of air classifiers. RHEWUM supports its customers in the design of the additional equipment as rotary gate valves, cyclones, filters and fans to ensure an optimum implementation of the air classifier into the entire process. The combination of a RHEWUM classifier and a RHEWUM screen enables the realization of new processing concepts in the dry processing of finest grained materials.

### :: Optical systems

#### :: DataSort/SizeChecker



#### :: DataSort

The RHEWUM DataSort is a system for sorting of various materials by colour. The DataSort uses a line scan camera which gathers the information about the colour of every single particle by scanning them. This information is evaluated with regards to individually settled sorting criteria by a special software. For example the tolerable percentage of off-colour spots on the surface of each particle can be settled before and only the particles exceeding this given value are separated.

The DataSort sorts particles between 3 mm and 200 mm size. Depending on the particle size the optimized hard- and software is able to detect and evaluate up to 20.000 particles per second and capacities of up to 180 t/h can be handled. In addition the special software allows the use of the DataSort for the separation by size and shape in combination – this is important for complex sorting tasks!



#### :: SizeChecker

The SizeChecker is an analysis device for the optical online-measurement of particle size and form of bulk solids for production monitoring and quality control. With the measuring principle particle sizes between 0.2 and 20 mm can be measured.

A sample of the material is separated from the product stream and led to the SizeChecker. The material characteristics are recorded contactless by a line camera. Special attention was paid to the suitability of the SizeChecker for the use in rough industrial surroundings. The special software enables a fast calibration of the instrument and by means of pre-programmed measurement routines a very easy operation. The implementation into industrial networks, e.g. OPC server, is given.

# :: Pneumatically assisted screening

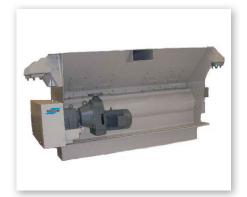


#### :: PWA

The screening machine type PWA is used for the screening of finely dispersed material with particle sizes between 20 and 250  $\mu$ m. For this type of screening machine the separation process is supported by the suction-effect of air. The screen mesh is kept free by the simultaneous use of compressed air and mechanical excitation. Therefore strong interparticulate adhesive forces can be resolved efficiently.

The screening machine type PWA is particularly appropriate for products with very exalted product requirements because in comparison to classifiers it ensures oversize free product fractions.

### :: Additional equipment



#### :: Rotary Gate Valves

RHEWUM Rotary Gate Valves are used as distribution device or as air exclusion device for downstream aggregates like screening machines or air classifiers. As distributing device for screening machines they ensure the equal and uniform distribution of the material onto the whole width of the machine. A positive side effect is the homogenisation of unsteady mass flows as appearing e.g. behind bucket conveyors.

Used as air exclusion device rotary gate valves prevent the transfer of excess air in separation processes e.g. behind a pneumatic conveying system. Due to their defined volume flow capacities volume rotary gate valves are suitable for the equal transportation and dosing of bulk solids. Equipped with variable frequency converters or adjustable gear drives the mass flow can be directed exactly to ongoing aggregates.

With their high-quality design with easy and fast to change rotary valves mounted on long life worm gears RHEWUM Rotary Gate Valves ensure a reliable operation even after long years under hard operating conditions.



#### :: Flappers

Flappers are used for the steering of material flows. By means of flappers e.g. a material flow can be distributed onto two screening machines. The flappers supplied by RHEWUM are highly adaptable to individual requirements. The adjustment of the midline inside the flapper is carried out either electromechanically, pneumatically or manually.

Optional position switches are available for sending information regarding the position of the flap to the process control system of the plant. A maximum operation reliability is guaranteed by the use of high-quality actuators, bearings, steel and special wear protection.



#### :: Cross-flow Classifier QS

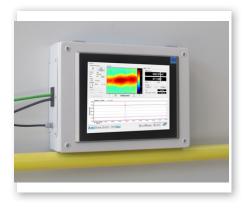
The patented Cross-flow Classifier QS is used for the de-dusting of fine-grained materials. Its special feature is its integration in the screening machine. This leads to reduced space requirements. Furthermore the de-dusting air of the screening process can be used simultaneously for the classifying process. Main application for the cross-flow classifier is the separation of fine grain from the product.

The geometry of the classifier was optimized by means of dynamic flow simulation to guarantee excellent separation process results. The patented principle enables the customer to realize completely new operation processes and product qualities.



#### :: ScreenGuard

The ScreenGuard is a measuring instrument for the continuous monitoring of the vibration characteristics of screening machines. It automatically detects changes in the vibration movements at critical operating conditions and provides an alarm signal to be utilized by the process control system. Because screening machines are often positioned at a central point of a production process by use of the ScreenGuard not only the operating reliability of the screening machine but of the complete plant is increased.



#### :: FlowChecker

The fields of application for the RHEWUM volumetric flow sensor FlowChecker are multiple. By measurement of the distance between the sensor and the conveyor belt the load of conveyor belts and therefore the volumetric flow are determined. This information can be used for the evaluation of the actual mass flow or the accumulated volume e.g. in storage and for the control of machines. Due to the small and lightweight design of the sensor the easy and fast assembly is guaranteed.

The simple operation and high measurement accuracy make the FlowChecker a very useful system as well as for permanent measurement as for short-term monitoring of volume flows.



#### :: Phase Monitor

As drive unit for screening machines asynchronous motors can be used for generating an unbalance excitation. The Phase Monitor is used for the monitoring of the phase sequences of this asynchronous motors. It is an electronic additional component to be integrated in any kind of control cabinet without any problems.

The Phase Monitor ensures that the motors are starting with the correct direction of rotation which otherwise may lead to critical operating conditions and damages. Additionally electrical defects of the motors and undervoltage of the electric power supply can be detected. The phase monitor is available for 50 and 60 Hz circuits and a voltage between 160 and 690 V.

# :: Overview on products.

	PWA	MDS	WA	WAU	DF	RIUS	UG	WET
abrasives								
animal feed								
asphalt concrete								
blasting sands								
casting sand								
chemicals								
coal and coke								
detergents								
fertilizer								
food								
grinding balls								
gypsum								
metallurgical								
minerals								
ores and slags								
pharmaceuticals								
pigments								
piasters								
polypropylene								
potassium salt								
recycling materials								
salts								
silica sand								
sugar								
used glass								







# :: Innovatively planned. Effectively produced. Success guaranteed.

We of RHEWUM understand the successes of the past as challenge to become even more attractive and more efficient for our clients, to design our machines more effectively.

With the RHEWUM testing facility we are offering to our international clients to effect trials with their materials and so to demonstrate in advance the efficiency of our machines directly in regard to their own products. Clear measurement results are straight integrated into the product development of the machine coming into consideration and so ensure customer's benefit.





∷ At a glance.



# :: Enjoy the Difference.

Each RHEWUM collaborator is aware of to be indebted to customer's interest and advantage. This client-oriented focussing is pathbreaking over frontiers and culture borders.

Starting with the first contact, the set-actual analysis followed by the technical clarification with first layouts, drafts, client trials and cost estimation up to detailed planning, production test run, customer's final acceptance and delivery all is precisely defined. All for a direct, open communication between client and RHEWUM. All for a fair partnership, all for your satisfaction.





# **::** Mobile screening machine WA(U).

RHEWUM would like to keep in touch with our customers to ensure that they are kept up to date with the latest processing technologies we will send an exhibition trailer to your site.

# :: Application of RHEWUM Screening Machines





# :: The RHEWUM team: reliable and competent.





RHEWUM GmbH Rosentalstrasse 24 42899 Remscheid P.O. Box 12 05 63 42875 Remscheid Germany

Phone: +49 2191 5767-0
Fax: +49 2191 5767-111
E-mail: info@rhewum.de
Web: www.rhewum.com