



Find out all about topics related to screening and classifying!

In our Glossary of Separation Technology you will find everything from A as Abrasion to W as Woven Wire Screen Cloth. What is an Eccentric? How does a Banana Screen work? And what impact do Sticking Particles have? Learn more about notions in the context of separating processes here.



## A

<b>Abrasion</b>	General term for unwanted products, both the coarse material as well as fines.	<a href="#">A</a>
<b>Acceleration</b>	The changing of velocity, usually the vibrating motion, leads to acceleration. This results in a force acting on the particles thus moving them over the screen.	<a href="#">B</a> <a href="#">C</a>
<b>Agglomerate</b>	Several particles adhering together.	<a href="#">D</a>
<b>Air Jet Sieve</b>	Testing sieve for very fine materials.	<a href="#">E</a>
<b>Amplitude</b>	The distance from the highest point of the screen to its center. The amplitude is equal to half the length of the distance from the highest to the lowest point of the movement. See also stroke. In the case of linear motion the amplitude is half of the total movement; for elliptical motion it is half of the major axis of the ellipse.	<a href="#">F</a> <a href="#">G</a> <a href="#">H</a>
<b>Angle of Repose</b>	The angle to the horizontal that a material will assume naturally when in a pile.	<a href="#">I</a> <a href="#">M</a>
<b>Angle <math>\rho</math> of Slide</b>	The angle to the horizontal at which material will slide on an inclined surface as determined by the nature of the material.	<a href="#">N</a> <a href="#">O</a>
<b>Angle <math>\beta</math>, Slope Aperture</b>	The inclination of a flat screen against the horizontal. The opening size of the slots or squares on the screen panel through which the material passes.	<a href="#">P</a> <a href="#">R</a> <a href="#">S</a>
<b>Aperture Size</b>	Dimension defining an opening in a screening surface.	<a href="#">T</a>
<b>Arc Screen</b>	See Sieve Bend.	<a href="#">U</a>

## B

<b>Ball Deck</b>	A special deck which retains balls (for example rubber balls) that strikes the underside of the screening surface.	<a href="#">V</a>
<b>Banana Screen</b>	Screening surfaces with different slopes arranged in series.	<a href="#">W</a>

<b>Bar Screen</b>	Stationary inclined screen, comprising longitudinal bars, spaced at regular intervals, on to which the material to be screened is fed at the upper end.
<b>Bed Depth</b>	The vertical depth (mm) of material on a screen deck, which should typically be 3 - 4 x the screen aperture. At WA screens it can be up to 20 times the screen aperture.
<b>Blinding, Clogging, Plugging</b>	Material that covers and closes the screen apertures.
<b>Bulk Density</b>	Weight per unit volume of bulk material, expressed as the weight/unit volume, typically applied to loose and powdery material including air pockets, expressed in kg/m <sup>3</sup> .
<b>C</b>	
<b>Centrifugal Screening</b>	In practice mostly moving the material in a stationary cylindrical screen by rotating agitators. In theory also operating a vibrating screen at $Fr > 1$ .
<b>Check Screen</b>	Screen determining the largest size of a product.
<b>Circulating Load, Recirculating Load</b>	The material which remains in the grinding/screening or granulation/screening circuit until it matches the grain size distribution.
<b>Classification, Classifying; Sizing</b>	Separating particulate material according to the particle size or sizing it into groups.
<b>Coating</b>	Cementing of the screen surface by virtue of stickiness. Mostly resulting from moisture content, seldom from adhesion or electrostatic charging.
<b>Consistency</b>	The dry solids content in a solid-liquid-suspension, expressed on weight or volume basis.
<b>Conveying Speed, Transport Velocity</b>	Speed with which the material is transported over the surface by vibration and/or slope.

[A](#)[B](#)[C](#)[D](#)[E](#)[F](#)[G](#)[H](#)[I](#)[M](#)[N](#)[O](#)[P](#)[R](#)[S](#)[T](#)[U](#)[V](#)[W](#)

<b>Counterflow</b>	Due to high slope, the material on a vibrating screen is flowing against the transport direction imposed by the vibrator. This results in a good deagglomeration of the material.
<b>Crimp</b>	Successive bends in a wire which result from performing or weaving.
<b>Critical Speed, see also Resonance</b>	Condition at which the imposed frequency of vibration approximates the natural frequency of the mass-spring system. Usually applied in circumstances where the effects produced are undesirable.
<b>Crown</b>	The convexity of a screen deck.
<b>Cut Size</b>	The particle size at which equal proportions of material report to the oversize and undersize. The aim of the screening.
<b>D</b>	
<b>Deck or Screen Deck</b>	The part of the screen that supports the panels.
<b>De-dusting, Polishing</b>	Removal of very fine particles from a feed by dry methods.
<b>Depth of Bed</b>	Thickness off the layer of material traversing the screen surface.
<b>Desliming</b>	Removal of extremely fine particles < 500 µm from wet material by passing it over a screening surface.
<b>Dewatering</b>	Removal of process water with a dewatering screen.
<b>Disagglomeration</b>	Dismatching of particle heap.
<b>Discharging Deck</b>	Screen, mounted above another screen, with apertures normally at least twice the size of those in the lower deck, used to reduce the load and wear of the lower screening surface.
<b>Double crimped</b>	A woven wire screen cloth when the wires are corrugated in both directions.

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**Double Frequency Drive,  
DF Drive**

Agitation by two out-of balance drives of different speed.

[A](#)**Dry Screening**

Separation of material containing no free liquid between the particles and therefore showing no adhesion due to surface tension of the liquid.

[B](#)[C](#)**E**[D](#)**Eccentric**

An assembly mounted on an off-center portion of a shaft, and used to convert rotary motion via levers to a reciprocating one.

[E](#)[F](#)**Eccentric Shaft**

Structural part of an out-of balance drive / comprising two eccentric bearings, hubs or bushes on one shaft.

[G](#)[H](#)**Eccentricity**

Maximum displacement from the center line position in a circular oscillating motion, e.g. the radius of the circle.

[I](#)[M](#)**Effective Screening Area,  
Net Effective Area**

Portion of screen deck available for material separation.

[N](#)[O](#)**Efficiency**

The percentage of product related to misplaced fines (undersize in oversize) calculated on a weight/weight (mass) basis: The percent of undersize in the feed that actually passes through the screening surface;  $n = \% \text{ of feed which actually passes through, divided by } \% \text{ of undersize in the feed that should pass through}$  ( $n = m_{ff}/m_{f0}$ ).

[P](#)[R](#)[S](#)[T](#)**Effluent**

The liquid passing through a screening surface.

[U](#)**Electro-Magnetic  
Screen**

A machine which has motion created by an electromagnet.

[V](#)[W](#)

**Elliptic Motion Screen** A machine which moves elliptically.

**Exciter**

Vibrator on a machine that operates on the resonant principle.

## F

<b>Fines</b>	Particles smaller than a specified size. Sometimes used synonymously with undersize (this is not recommended).	<a href="#">A</a>
<b>Fixed Screen, Static Screen</b>	Stationary inclined screen used to remove a proportion of the fines from a dry feed or a proportion of the liquid and the fines from a pulp or slurry, by force of gravity.	<a href="#">B</a> <a href="#">C</a> <a href="#">D</a>
<b>Float</b>	The lightest weight material from a density separation.	<a href="#">E</a>
<b>Flooding</b>	Feeding screen beyond its capacity.	<a href="#">F</a> <a href="#">G</a>
<b>Flow Screen</b>	Screening machine with transport of fines through a liquid (usually water) or a gas (usually air).	<a href="#">H</a>
<b>Frequency</b>	The number of times the screen peaks or troughs during 1 second. Measured in Hz.	<a href="#">I</a> <a href="#">M</a>
<b>Froude Number Fr</b>	See also Screen Number K.A dimensionless number, an important criterion characterizing the material on the screening surface.  The relation of vibrational acceleration and gravity. $Fr = K = ew^2/g = 1.5 - \text{approx. } 5.5$	<a href="#">N</a> <a href="#">O</a> <a href="#">P</a>
<b>G</b>		<a href="#">R</a>
<b>g</b>	Acceleration by gravity, $g = 9.81 \text{ m/s}^2 (= 32.2 \text{ ft/s}^2)$ . Accelerations are usually expressed as multiples of one gravity, e.g. 1g, 6.6g.	<a href="#">S</a> <a href="#">T</a>
<b>G-force</b>	Acceleration force of the screen, which should typically be 3 - 7g.	<a href="#">U</a> <a href="#">V</a>
<b>Grizzly</b>	Rugged screen comprising fixed or moving bars, discs, or shaped tumblers or rollers, normally used for screening comparatively large particles, e.g. > 100 mm.	<a href="#">W</a>
<b>Guard Screen</b>	Screen used pro prevent the entry of coarse particles into a machine which might interfere with its operation.	

## H

### Horizontal Screen

Vibrating screen with a motion which is substantially in a straight line in the vertical plane, normally installed horizontally, but may be inclined up to 8°.

[A](#)

[B](#)

## I

### Inclined Screen

Vibrating screen, installed at an angle between 10° and 45°.

[C](#)

[D](#)

[E](#)

### Inherent Moisture, Contained Moisture

Liquid, usually water, held within the particle, i.e. which is hygroscopic bound in a sample of a material, usually expressed as a weight percentage of the sample mass.

[F](#)

[G](#)

[H](#)

## M

### Mean Size

The weighted average particle size of a sample, batch or consignment of particulate material.

[I](#)

[M](#)

### Mesh

Number of openings per linear inch, counting from the center of a wire. American unit of measurement; imprecise, as the wire diameter is not mentioned.

[N](#)

[O](#)

### Mesh Count

Number of apertures per unit of linear measure in a woven wire cloth or wire screen.

[P](#)

[R](#)

### Multi-Slope Screen, Banana Screen

Linear motion screening machine with different inclined, successively arranged screening surfaces (decks). Commonly referred to as banana screen. Used for coarse separations at high capacities.

[S](#)

[T](#)

[U](#)

## N

### Near-Size Material, Nearmesh Material

That material very nearly to the size of the aperture, generally +/- 10 % of the aperture.

[V](#)

[W](#)

### Nominal Size

The particle size used to describe a product of a sizing operation.

## O

**Open Area** For woven wire cloth and wire screens, the ratio of the total area of the apertures to the total area of the cloth or the screen. For perforated plate, the ratio of the total area of the holes to the total area of the perforated part of the plate.

[A](#)

[B](#)

[C](#)

**Oscillating Screen** Also Shaker, Sifter and Vibrating Screen. A machine with screening surface(s) used to classify material by particle size.

[D](#)

[E](#)

**Outsize Percentage** The oversize or undersize material (or both), present in a product. Usually expressed in percent of the product.

[F](#)

**Overflow** That portion of the feed discharged from the screening surface without having passed through the apertures; the material that overflows a screen surface.

[G](#)

[H](#)

**Oversize** Screened product of a size greater than a specified size.

[I](#)

[M](#)

## P

**Particle** Discrete element of the material regardless of its size.

[N](#)

[O](#)

**Particle Size Distribution** The results from a lab analysis when material is put through a number of sieves of different mesh size and the weight percentage of each size is plotted on a curve in Cumulative Percent Passing.

[P](#)

[R](#)

[S](#)

**Particle Size, Sieve Size of a Particle** Smallest sieve aperture through which a particle will pass if presented in the most favourable attitude.

[T](#)

[U](#)

**Percent Solids** Concentration of a suspension. Commonly specified by weight but may be specified by volume.

[V](#)

[W](#)

**Perforated Plate** Screening surface manufactured by punching apertures of various form in metal sheet, or screening surface consisting of a plate with uniform holes in a regular arrangement. The wholes may be square, slotted, circular or of another regular geometric shape.

<b>Plain Weave</b>	Weave in which every warp wire crosses alternately above and below every weft wire and vice versa.
<b>Positive Drive, Forced Drive</b>	Stroke determined by eccentricity of the shaft.
<b>Pre-Screening, Scalping</b>	Removal of a small amount of the feed, usually unwanted oversize lumps material.
<b>Product, Final Product</b>	In general, the material resulting from any preparation. In particular, the final material of a process; e.g. screened product, final product etc.
<b>Protection Screening</b>	Strictly the removing of a small amount of oversize from a feed which is predominantly fines. Typically, the removal of oversize from a feed with approximately a maximum of 5 % oversize, and a minimum of 50 % half-size.
<b>R</b>	
<b>Rating</b>	Screen or pair of screens to which a combined horizontal and vertical motion is imparted by a crankshaft and connecting rods, the screening surfaces being horizontal or inclined at a small angle.
<b>Recovery, Yield</b>	Portion of the product in the product fraction. Important to determine the screening efficiency.
<b>Rectangular Opening</b>	Elongated openings in woven wire screen and perforated plate also. Usually in a ratio of 1:3 or 1:10.
<b>Repulping</b>	Humidification within troughs to assist flowability of product.
<b>Resonance</b>	The frequency at which any mass-spring system will vibrate naturally.
<b>Retention Time</b>	The time a particle is actually on the screen surface.

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**Revolving Screen,  
Trommel**

Screen, in which the screening surface is formed into a cylinder or frustum of a cone, mounted on a horizontal or near horizontal rotating shaft or on revolving rollers. The material to be screened is fed into the interior of the revolving screen.

[A](#)[B](#)**Rod Deck**

A screening surface made up of rods, replaceable individually.

[C](#)[D](#)**Roll Screen**

Screen consisting of a number of horizontal rotating drums, fitted with elements arranged to provide screening apertures.

[E](#)[F](#)**S**[G](#)**Sampling,  
Representative**

Representative splitting up of the initial quantity until the quantity of sample to be analyzed is reached.

[H](#)[I](#)**Scalping**

The separation of part of the total feed as coarse oversize by retention on openings more than 50 % larger in diameter or width as the largest particle in undersize. Usually 10 - 20 % of the feed.

[M](#)[N](#)**Screen**

Device for carrying out the process of screening for industrial purposes. Note: The term "screen" is also a commonly used abbreviation for "screening surface" or "screen deck".

[O](#)[P](#)[R](#)**Screening Conveyor**

Simple, rectangular screen on which the material is transported and separated into two fractions

[S](#)[T](#)**Screening Drum,  
Trommel,  
Scrubber or  
Barrel Screen**

A cylindrical drum of perforated plate or rigid wire screen revolving at  $Fr < 0.5$ .

[U](#)[V](#)[W](#)**Screening Purity,  
Pureness**

Proportion to the onsize particles of the product fraction in relation to the quantity of the fraction. Often the required product quality.

<b>Segregation</b>	Is formed in a bed of material when - by the vibration - the finer material deposits downward and the coarser material deposits to the top of the product bed by different specific gravities.
<b>Selvage</b>	A finished edge of woven wire screen produced in the weaving process of finer meshes.
<b>Shaker</b>	Screen with reciprocating motion.
<b>Side Tension</b>	Tensioning of a woven wire cloth across the direction of material flow.
<b>Sieve Analysis</b>	Determination of size distribution by using analysing sieves with defined aperture.
<b>Sieve Bend</b>	Device for screening fine particles suspended in liquid by means of a stationary curved panel, whereby the finer particles are removed from the bulk of the liquid in the underflow. It is also used as a firststage dewatering device.
<b>Sieve Series</b>	A standardized sieve scale.
<b>Sifter</b>	Type of screen having a rotary motion substantially in the plane of the screening surface, normally used for the screening of comparatively small particles, e.g. < 1 mm.
<b>Sink</b>	The heaviest weight material fraction from adensity separation.
<b>Size Fraction</b>	The interval between two quoted limiting sizes of the material with particle sizes between those limits.
<b>Slotted Mesh</b>	Woven wire cloth in which one dimension of the apertures is greater than the other.
<b>Slurry</b>	Mixture of liquids and solids.
<b>Slurry Density</b>	Weight per Unit volume of slurry stream and is a combination of the respective density of the solids and liquid calculated in proportion of the weight percentage of the solids and liquid in the slurry.

[A](#)[B](#)[C](#)[D](#)[E](#)[F](#)[G](#)[H](#)[I](#)[M](#)[N](#)[O](#)[P](#)[R](#)[S](#)[T](#)[U](#)[V](#)[W](#)

**Sonic Screen** Screen with directly agitated screening surface at 50 or 60 Hz (within hearable sound).

**Step Deck** A series of screening surfaces, each located in progressively lower parallel planes along the vibrating screen in order to produce several fractions.

**Sticking Particles** Fine particles sticking to the coarse grains or screen cloths.

**Strike Indicator** A device attached to the sideplate from which stroke can be read directly (approx. 5 x).

**Stroke, Throw** Distance between the extreme positions of an oscillating motion. The stroke is equal to twice the amplitude.

**Stroke; Throw, see Amplitude** Twice the amplitude, diameter of a circular motion

**Supporting Mesh, Supporting Screen Cloth** Coarse-mesh screen cloth to protect fine-mesh separating screen cloths.

**Surface Moisture** Liquid adhering to the exposed surfaces of the particles of a sample of material, normally expressed as a percentage of the sample mass.

## T

**Tailing** Waste product in ore classification.

**Testing Sieve** A cylindrical or traylike container with a screening surface bottom of standardized apertures.

**Throughput** Quantity, which can be processed by a screening machine. Product of the screening area in m<sup>2</sup> and specific screening capacity (t/m<sup>2</sup>h).

**Thrus, Passing Material** The material that passes through a screening surface, including contamination of foreign particles.

[A](#)[B](#)[C](#)[D](#)[E](#)[F](#)[G](#)[H](#)[I](#)[M](#)[N](#)[O](#)[P](#)[R](#)[S](#)[T](#)[U](#)[V](#)[W](#)

<b>Total Moisture</b>	The sum of inherent and surface moisture.
<b>Trough for Repulping</b>	A trough, transversally positioned between two screening surfaces.
<b>Tumbling Screen</b>	Gyrating sifter with superimposed tumbling.
<b>Twilled Weave</b>	Weave in which every warp wire crosses alternately above and below every second weft wire and vice versa.
<b>Type of Weave</b>	The way in which warp and weft wires cross each other.

## U

<b>Ultra-Sonic Screen</b>	Excitation of screen cloths by a frequency > 18 kHz.
<b>Unbalanced Drive</b>	Vibratory screen driven by an unbalance.
<b>Unbalanced Pulley</b>	Type of screen on which the stroke is determined solely by the dynamic force of the counterweight.

## Underflow, Throughput

That portion of the feed which has passed through the apertures of a screening surface.

## Undersize

Material having particle size smaller, at least in one dimension, than a specified aperture.

## V

## Vibrating Screen

A screen with motion in a vertical plane which operates generally above 600 rpm at less than 2.5 cm stroke.

## W

## Warp

All wires running lengthwise of the cloth as woven.

## Warp Wire

Wires running parallel to the length of the cloth as woven.

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<b>Wedge Wire Screen</b>	Screening surface comprising wires of triangular or trapezoidal cross-section spaced from each other at a fixed dimension; the underflow thus passes through an aperture of increasing cross-section.
<b>Weft, Shoot</b>	Wires running across to length of cloth, as woven.
<b>Wet Screening</b>	Screening with the aid of a liquid, usually in the form of a spray.
<b>Wire Diameter</b>	Diameter of the wire for a woven wire cloth, as measured before weaving.
<b>Woven Wire Cloth, Wire Screen</b>	Screening surface, produced by a wire weaving process or by pressure-welding of two layers of parallel wires. The wires form square or rectangular apertures of uniform size. They may be precrimped before weaving.
<b>Woven Wire Screen Cloth</b>	The medium that is used for screening on the screen deck, synonymous with sieving or screening medium.

**Do you have any questions?**

**Our specialists are pleased to assist you at any time. You can reach us at [info@rhefum.de](mailto:info@rhefum.de) or [+49 2191 57670](tel:+49219157670) .**

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