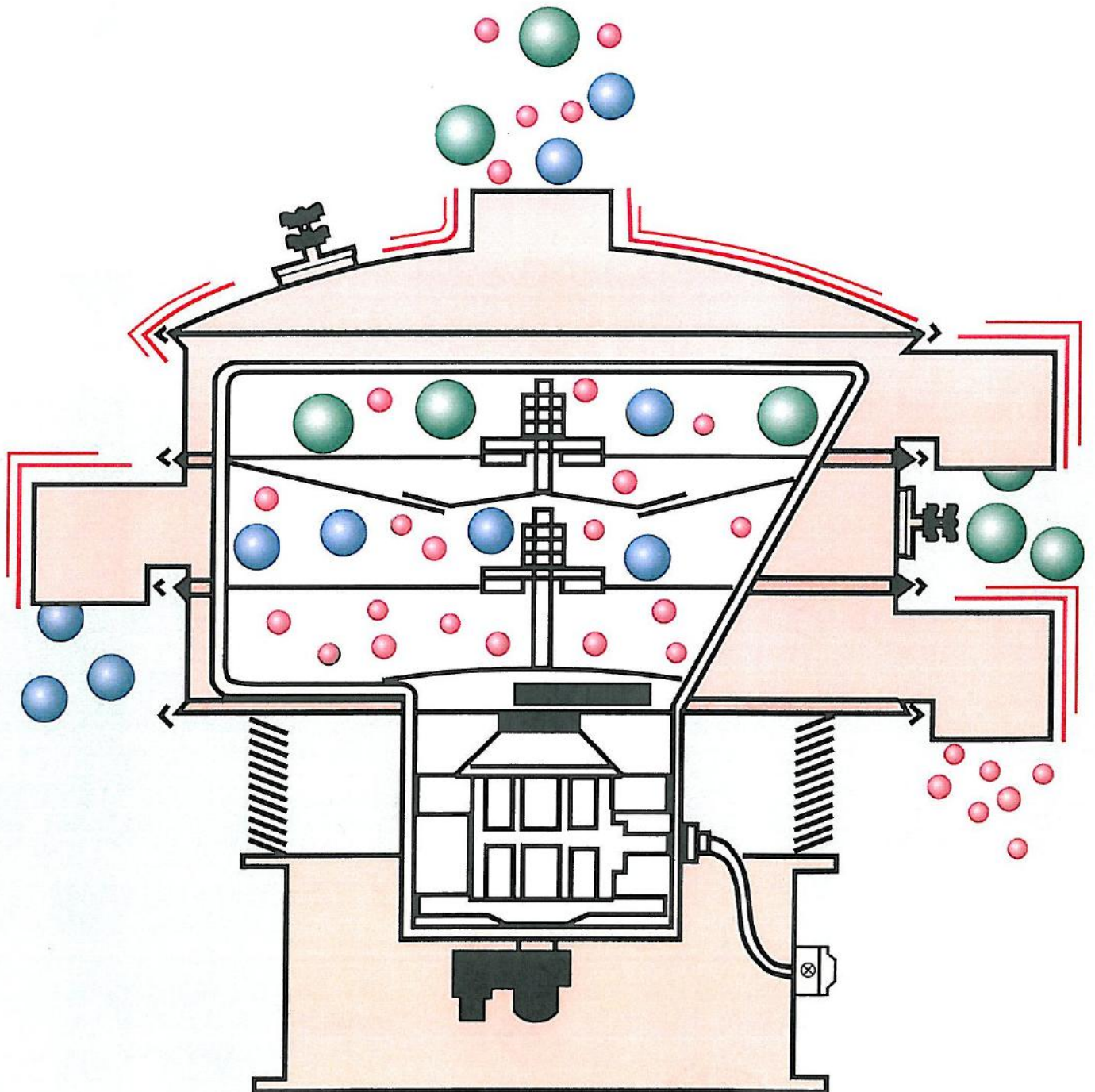




AMKCO VIBRA-SCREEN SEPARATOR

RELIABLE AND EFFICIENT



CHOICE OF DESIGNS FOR EFFICIENT SEPARATION – WET OR DRY



AIR TIGHT SEPARATOR

Designed for screening in pneumatic conveying systems.

Primarily for in-line scalping of dry, free-flowing materials. Assures efficient removal of oversized particles and foreign materials during loading or unloading of tank trucks and rail cars, or while conveying materials to storage or process. Sizes from 24" to 72" with stainless steel on all product contact surfaces.

VIBRA-SCREEN



High efficiency circular vibratory separators in 8 sizes from the 18" diameter laboratory / production unit to the 84" diameter machine that is redefining even

higher capacity and reliability standards. Creative design features: maximize screen area use, handle varying feed rates, screen materials of changing consistencies, increase the "unders" or "overs" capacities, and prevent screen blinding. One to five screen surfaces yielding up to six predetermined fractions with accurate separations in mesh sizes from 2" down to 25 micron (500 mesh).

AUXILIARY SERIES



Auxiliary series feed frame to increase screen area by up to 70 per cent within the same frame height. Applied to increase efficiency of a separation or increase thru-put. Sizes come in 60" and 72".

BATCH SIFTER

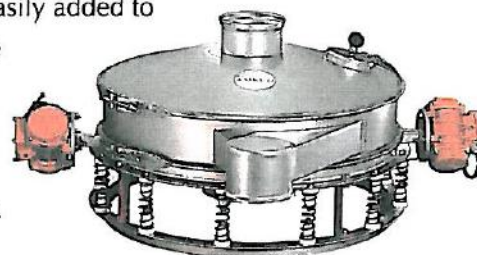
Batch dry sifting or wet filtering requires a simple, economical design that does not require continuous discharge



of the over size material. The 18" or 24" models have only one vibrating motor (electric or air) mounted vertically to impart horizontal motion. Designed for intermittent or continuous operations where occasional but fast separations are needed. Portable or stationary, commonly used above a mixer or bag dump station.

STRAIGHT-FLO SEPARATOR

High volume scalping requires a design where the material only hesitates as it flows through the screen and out of the separator. The straight-flo design has dual vibrating motors attached externally at the sides, and a centre conical discharge spout directly in line with the feed. The in-line feature and low height allows the scalping function to be easily added to existing flow lines, where overhead space is a premium, and on-size product drops directly down to the next process. Recommended for high volume dry scalping or high volume wet filtering. Available in all model sizes.



MEETING EVERY SCREENING REQUIREMENT



AMKCO Separator Screens are compact production machines which make mechanical separations according to particle size through proven use of multi-plane inertial vibration techniques. They are designed and built to solve the most difficult classifying, separating and dewatering problems. One to five screen surfaces are superimposed to yield up to six fractions. Separators are being used to make accurate separations ranging from 2" clear opening to 25 micron (500 mesh). Eight standard models, sized from 18" diameter to 84" diameter are equipped with the epoxy or spot welded screens, and all wetted parts are built of stainless steel. Other construction materials or protective coatings can be supplied if required.

ATEX, CE certification

SELECTING SCREEN APPLICATION TYPES

Any screening operation can be divided into one of five categories:

DRY

SCALPING

The removal of a small percentage of oversize from a product.

DE-DUSTING

The removal of a small percentage of fines from a product.

CLASSIFYING

The separation of particles by size into two or more products.

WET

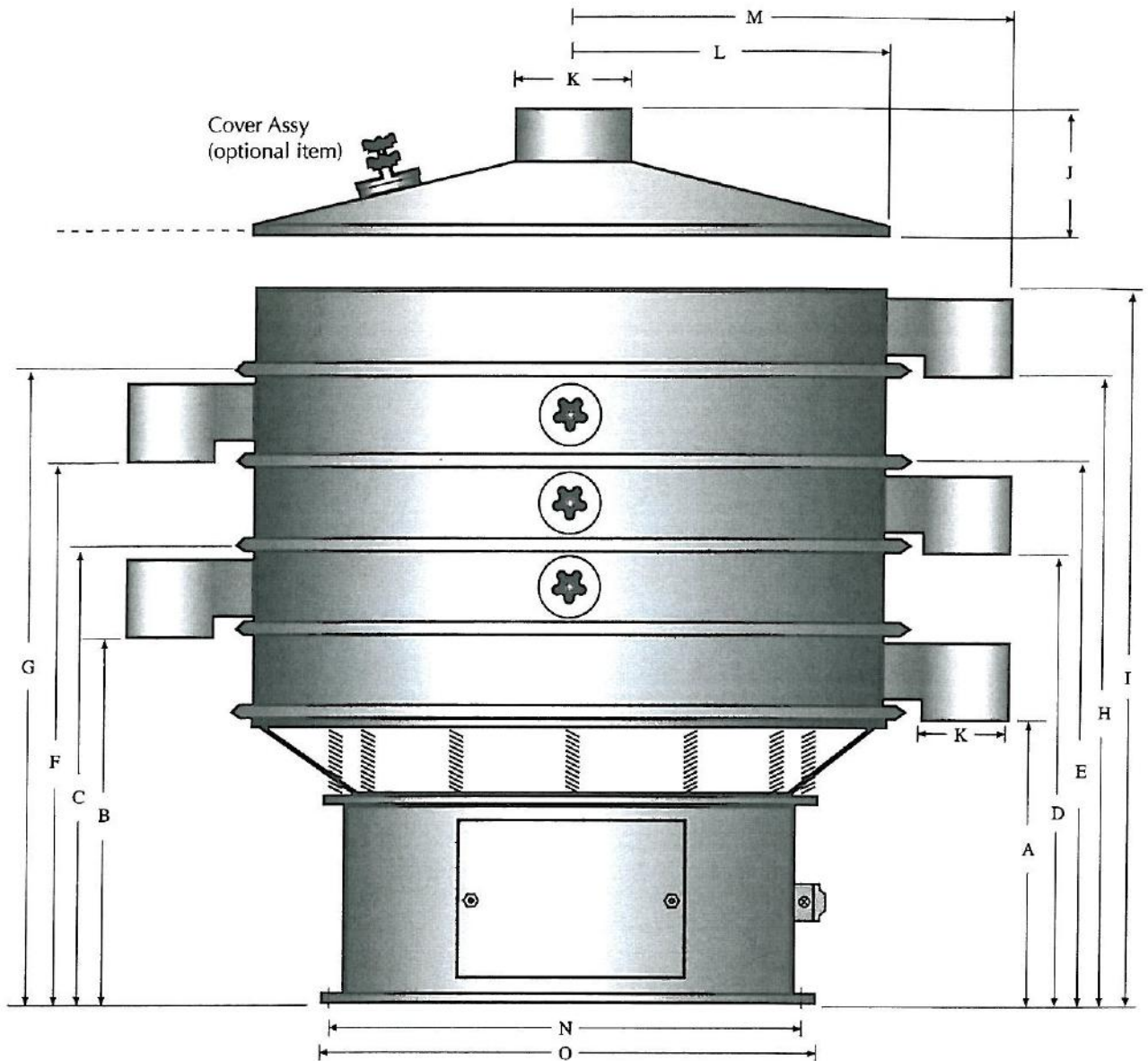
DE-WATERING

The removal of a high percent of solids from a liquid.

FILTERING

The removal of a low percentage of solids from a liquid.

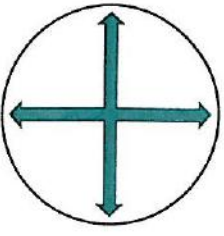
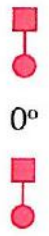
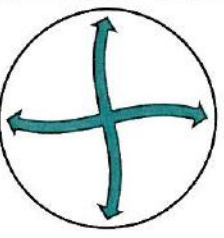

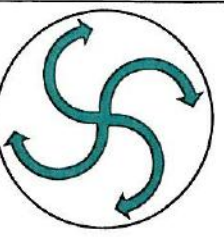
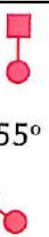
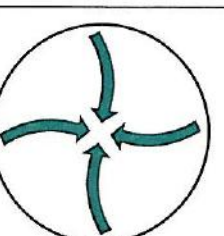
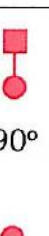
STANDARD ROUND VIBRA-SCREEN DIMENSIONS



Amkco Model	1 Deck		2 Decks		3 Decks		4 Decks		J	K	L	M	N	O	
	A	B	C	D	E	F	G	H							I
A-18	33	42	54	52	63	61	72	70	81	9	10	23	35	38	41
A-24	39	50	65	61	76	72	87	83	98	11	16	30	48	53	58
A-30	43	58	77	75	93	92	108	107	124	14	16	40	53	56	60
A-40	55	75	98	96	119	117	139	138	160	20	21	51	76	78	84
A-48	55	75	98	96	119	117	139	138	160	20	21	61	91	89	93
A-60	55	75	98	96	119	117	139	138	160	23	21	76	100	104	109
A-72	60	84	106	105	128	125	148	146	168	32	26	91	114	135	141

Note: Dimensions in cm. Subject to change without prior notice.

THREE-DIMENSIONAL MOTION

FLOW PATTERN	PHASE	DESCRIPTION	MAJOR APPLICATION
	 0°	Product flows straight from centre to circumference	Easily screenable product, de-dusting
	 15°	Slight vortex motion	Ordinary screening
	 55°	Deepest vortex	Classification of particles into several product categories, long retention time
	 90°	Grains concentrated towards center	Scalping oversize from product

VIBRA-SCREEN SEPARATION

It is a unique and ideal separation technology which includes a vertical mounted motor to facilitate "three-dimensional motion" composed of circular and elliptic motions in horizontal, vertical and inclination planes. The AMKCO Separator achieves superb performance in sieving dry or wet products having a variety of properties, shapes and sizes.

ACTION AND PRINCIPLE

The principle of the AMKCO Vibra-screen is embodied in a pair of unbalanced weights, an upper weight installed on the upper shaft of the motor and a bottom weight on the lower shaft, which are capable of converting the motor rotation into a 3 "three-dimensional motion". By varying the phase-angle between the weights, the product flow pattern and duration time on the screen can be adjusted.

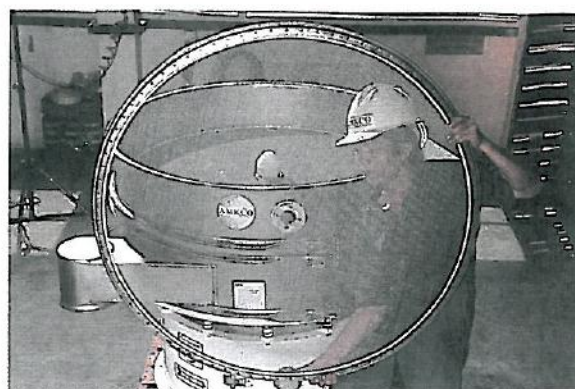
A BROAD SCOPE OF APPLICATIONS

- Classification (uniform particle distribution)
- Separation of product and foreign matter
- Separation of coagulated and coarse grains
- Dispersion of coagulated powder particles
- Separation of certain shapes
- Separation and recovery of useful materials and parts
- Wet filtrating
- Cleaning, dehydration, extracting of liquid and drying
- Adjustment to manufacturing process
- Improvement of packing quality
- Measuring constant quantity of large volume reference for improvement of blending accuracy
- Mixing
- Granulating
- Improve fluidity
- Controlling powder flow
- Extraction of dust

PROFITABLE SOLUTIONS TO PROCESS PROBLEMS



QUICK AND EASY SCREEN CHANGE are obtained by a sugar producer using a 2-deck Separator to simultaneously classify sugar into 3 products. The users market has several different specifications requiring fast and easy screen changes. For smaller units, quick release clamps and no screen center tie downs make changes even faster.



MINIMUM SCREEN BLINDING for all separation processes is achieved through the use of and the combination of several techniques. The vibration of the Separator, the use of sliders, the use of bouncing balls, the use of ultra-sonics, the use of water sprays, the use of wipers, and last but not least, the use of good well tensioned screens.



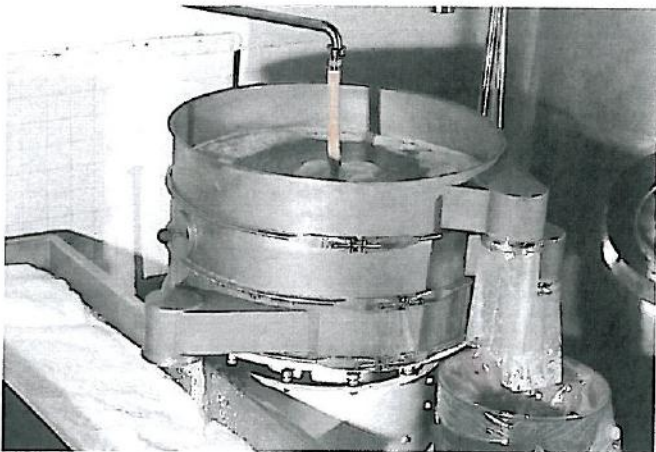
NEW FOOD PRODUCT made possible with ultrasonic application to the screen. The material would not process at the required screen mesh. Now, the end product is unique with fast pay back to the producer.



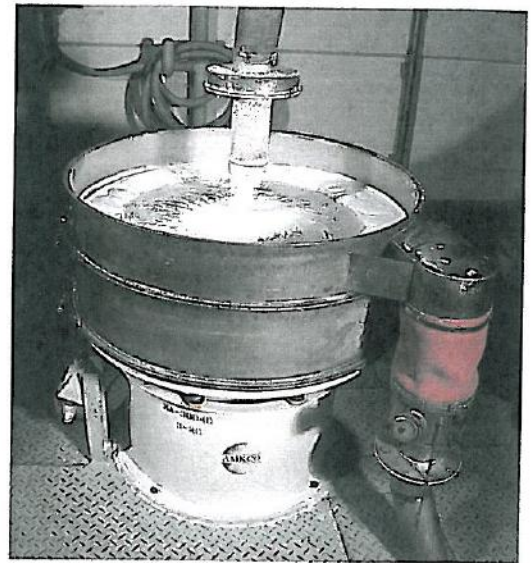
LONG SCREEN LIFE is our goal. Removing fiber from coconut milk prior to packaging adds little to the cost of the product because the screen lasts nearly a year. Proper tension, high quality wire, and bonding or welding achieves quality product at low cost.



HIGH CAPACITY IN LIMITED SPACE is required by palm oil producers. Twenty hour days over a hot oil tank at 98° C require a high degree of reliability in a cramped environment.



NO TRANSMITTED VIBRATION was a need for a dairy and juice producer. The AMKCO separator is mounted on a portable stand, easily moveable to different locations for different products. The various locations have floors that are not always level. Quick and easy shims under the legs keep the screen level for good separation.



RELIABLE SCALE-UP was achieved by a fused silica producer who needed to increase production with a new product without lengthy production testing. Small, portable separators offer testing and reliable data for thousands of dry and wet processes. This adds confidence in the AMKCO selection.



ADAPTABILITY was the reason a sand producer installed an AMKCO separator. Variable feed rates, variable screen meshes, and variable product hoppers made our unit their choice.



PRODUCT QUALITY is assured with a final screening before packaging and sending to the customer. Shipping product in bulk only saves the end user time and money when they know the received product is "on spec" and no foreign material is present. A minimum investment for an AMKCO scalping unit gives confidence.

BASIC SEPARATOR FUNCTIONS

DRY APPLICATIONS

SCALPING – Small percentage of over-size

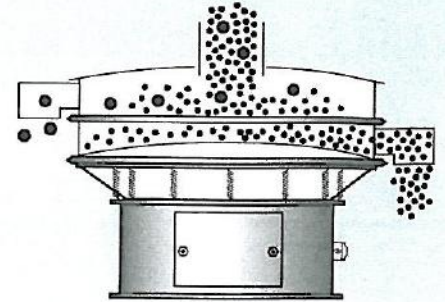
Foods: Dried milk powder, dairy products, starch powder, cocoa powder, dried eggs, spices, tea from bags.

Chemicals and Petrochemicals: PVC, polyethylene pellets, melamine, phenolics, cellulose, acetate, polystyrene, sodium carbonate, calcium carbide, copper sulphate, detergents, iron oxide, stearic acid, titanium dioxide, zinc oxide.

Minerals and Metals: Stones from pit sand, barite, mica, perlite, talc, diatomaceous earth.

Animal Feeds: Scalping of foreign material from mash, removal of over size from additives.

Grains: Separation of large foreign materials from bulk shipments, flour sifting.



DE-DUSTING – Small percentage of undersize

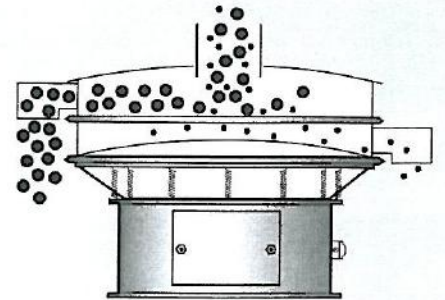
Foods: Instant coffee powders, ground coffees, cereals, spices, nuts, potato flakes, additives, vitamins.

Chemicals: Polyethylene pellets, polystyrene, caustic soda flake.

Pulp and Wood Product: Particle board.

Pharmaceuticals: Tablet de-dusting, granulation.

Fertilisers: Pelletised, granulated mixes, ammonium nitrate prills.



CLASSIFICATION – Sizing into two or more categories

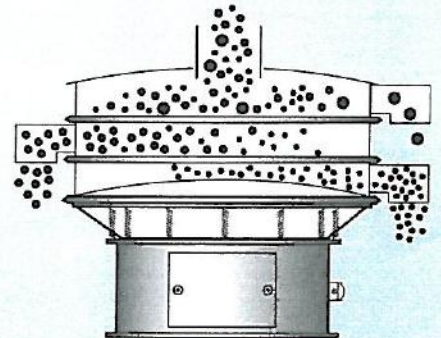
Foods: Pea grading, sugars, salts, spices, nuts, bread crumbs.

Chemicals and Petrochemicals: Catalyst beds, monosodium glutamate, expandable polystyrene beads, resins.

Minerals and Metals: Metal powders (aluminum, copper, bronze, nickel, iron) sand, silica.

Pulp and Wood Products: Wood chips, particle board, sawdust, wood flour

Abrasives: Sand, carborundum, aluminum oxide, glass beads, blasting grit (steel, oxides, iron, copper oxides).



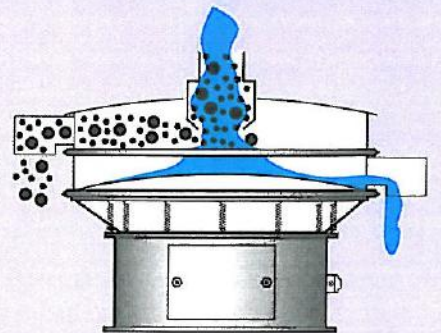
WET APPLICATIONS

DE-WATERING – High percentage of solids on screen

Foods: Separation of bagasse from sugar melt, casein curd from whey, corn fiber from starch slurry, gluten from wheat starch, de-watering of fruits and vegetables, spent coffee grounds, potato slices, instant rice, tuna, caustic bottle wash, apple or citrus juices prior to filtration.

Chemicals: Separation of salt from glycerine, polyethylene from extruder water, coagulum from latex, aligns from digestion liquor, spirulina de-watering, de-watering of digested reclaim rubber, TNT, clarifying of polyvinyl acetate emulsions, paints, enamels.

Pulp: De-watering of rejects before refining, de-watering of knots.



FILTERING – Small percentage of solids remain on screen

Foods: Protein from yeast slurry, chocolate liquor, frying oil, potato starch, soymilk.

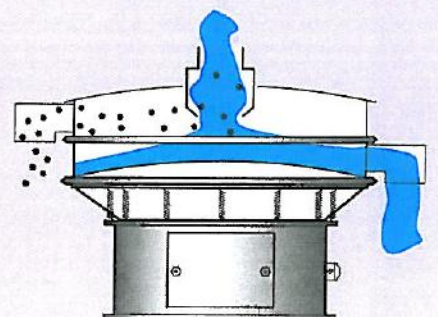
Chemicals: Aluminum paint suspension, feeds to decanters, centrifuges, classify pigments.

Minerals: Separate impurities from kaolin slurry prior to centrifuging, Colombian ore in closed circuit grinding, calcium carbonate.

Pulp and Paper: Recovering fiber from mill effluent, starch size press, coating suspensions, white water to produce shower quality water.

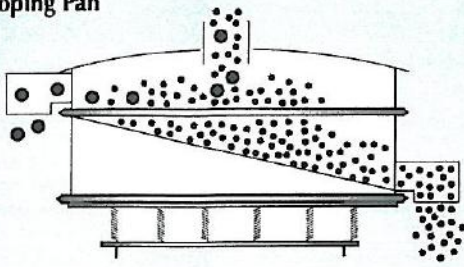
Ceramics: Clarify body and glaze slips for dishes, sanitary ware, fine china, pottery.

Waste Disposal: Cannery wastes, paunch manure from meatpacking, distillery slop.



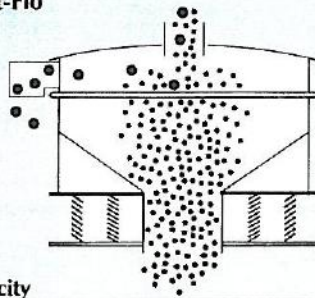
TO INCREASE CAPACITY

Sloping Pan

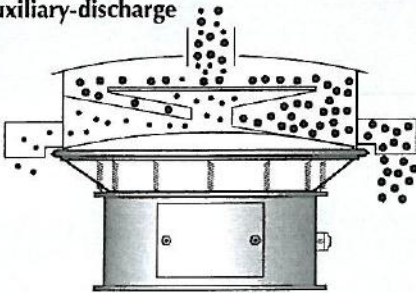


Increase Discharge Capacity

Straight-Flo

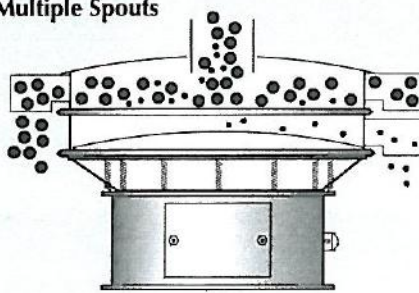


Auxiliary-discharge

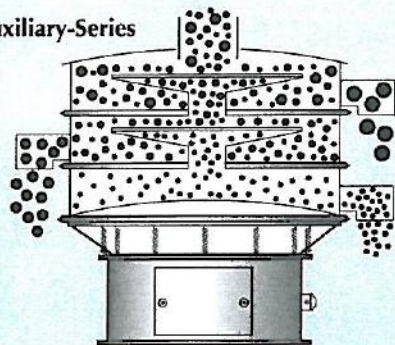


Increase Screening Capacity

Multiple Spouts

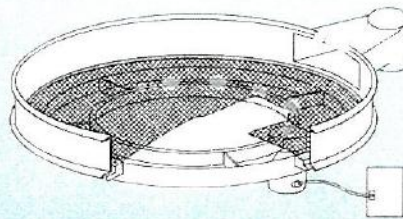


Auxiliary-Series

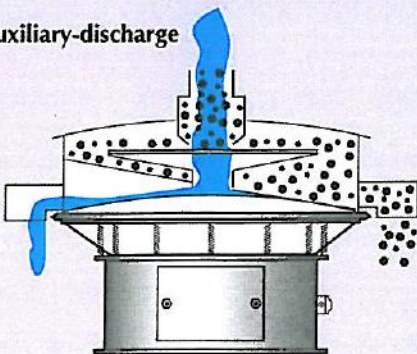


Increase Screening Capacity

Ultrasonic

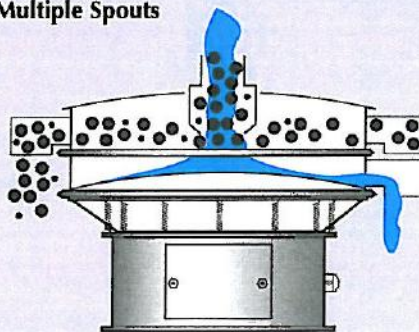


Auxiliary-discharge

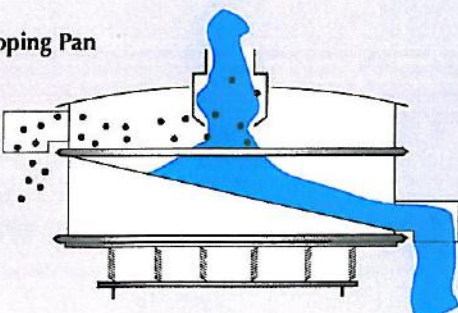


Increase Screening Capacity

Multiple Spouts

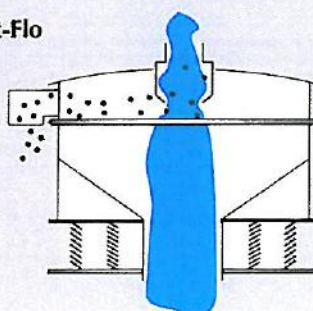


Sloping Pan



Increase Discharge Capacity

Straight-Flo



CENTER FEED SYSTEM

Vibra-screen Separators use a single feed pipe onto the center of the screen allowing 100% of the screen area to be available for separating. Velocity reducers for high flow rates can be used to ensure even and steady flow to the separator. Center feed systems also permit units to fit into existing process lines with a minimum of extra piping.

DISCHARGE FRAMES

Discharge frames allow the rapid discharge of undersize particles or liquid from the separator. Tilted domes, deep frames, and oversized discharge spouts offer different options to obtain higher capacity removal of liquids or solids from the unit. Double slope domes, twin spouts, and baffles can be used to further extend discharge capacities in wet or dry separations.

AUXILIARY DISCHARGE FRAME

This design provides a 360 degree discharge from the screen deck in dry or wet separations. The full screen area is available for separation as solids cannot build up at the screen periphery while waiting for discharge. As solids reach the screen edge, they either fall out of the unit or into a vibrating chute attached to the frame. The de-dusting capacity of the separator is increased greatly, system overload is virtually impossible, and a very low head height is available.

APPLICATION EXAMPLES

Input material	Apparent specific gravity	Screen	Model	Dry/Wet	Process rate
		Mesh			kg/hr or l/hr
• CERAMICS					
Abrasives	1.5	12, 16, 250	A30S-3-6666	Dry	1000kg
Alumina	0.8 – 1.2	100	A40S-1-66	Dry	250kg
Fire Brick	1.2	2mm	A60S-1-88	Dry	14000kg
Kaolin	0.4	100	A40S-1-66	Dry	200kg
Lime	2.3	100	A40S-1-66	Dry	500kg
Silica Grains	1.5	40, 65, 200	A48S-3-8888	Dry	1800kg
Silicon Carbide	1.5	325	A40S-1-66	Dry	150kg
Silicon Nitride	1.0	200	A30S-1-66	Dry	250kg
Slaked Lime	0.7	30, 50	A30S-2-666	Dry	600kg
Slip	1.1	120	A40S-1-88	Wet	10000l
Zeolite	0.2 – 0.6	5mm, 2mm, 1mm	A40S-3-6666	Dry	1000kg
Zircon Sand	4.6	40	A48S-1-88	Dry	6000kg
• CHEMICAL PRODUCTS INCLUDING RESINS					
Bead Slurry	1.1	50 3mm	A40S-1-66	Wet	7200l 12000l
Epoxy Resin	0.8	100	A40S-1-66	Dry	260kg
MBS Resin	0.3	30	A18S-1-33	Dry	125kg
Melamine Formaldehyde Resins	0.4	35, 60	A18S-2-333	Dry	24kg
P.E. Pellets	1.05	10, 20	A40S-2-666	Dry	3000kg
P.V.C. Resin Pellet	1.0	9.5mm	A30S-1-66	Dry	770kg
P.V.C. Resin Pellet	1.0	ø10mm, ø5	A48S-2-888	Dry	5000kg
Polyethylene Powder	0.5	60	A48S-1-88	Dry	550kg
Vinyl Chloride Resins	0.45	48, 100	A18S-2-333	Dry	31kg
Zinc Oxide	0.25 – 0.35	16, 60	A48S-2-888	Dry	1500kg
• COATING MATERIALS					
Acrylic Powder Paint	0.5 – 0.8	80	A18S-1-33	Dry	50kg
Epoxy Powder Paint	0.5 – 0.8	60	A18S-1-33	Dry	280kg
Magnetic Toner	5.0	100	A18S-1-33	Dry	300kg
Non-Magnetic Toner	0.4	60	A40S-1-66	Dry	100kg
Paint	0.8	10	A18S-1-33	Wet	1800l
Polyester Powder Paint	0.6 – 0.8	80	A30S-1-66	Dry	200kg
• ELECTRICAL & MAGNETIC MATERIAL					
Ferrite	1.7 – 2.3	40	A40S-1-6	Dry	900kg
Coethite	0.2 – 0.6	325	A30S-1-66	Dry	150kg
Graphite	1.2	18, 40, 80	A40S-1-66	Dry	1400kg
Titanate	1.4	16	A30S-1-66	Dry	500kg

- TESTING OF PRODUCT IS RECOMMENDED
- MODIFICATIONS AVAILABLE TO INCREASE CAPACITY OR MEET SPECIFIC NEEDS

Input material	Apparent specific gravity	Screen	Model	Dry/Wet	Process rate
		Mesh			kg/hr or l/hr
• FOODSTUFFS					
Beer Yeast	0.5	32	A48S-1-88	Wet	12000l
Common Salt	1.2	10 30, 80	A18S-1-33 A60S-2-888	Dry Dry	125kg 5000kg
Corn Starch	0.8	40	A30S-1-66	Dry	1100kg
Gelatin	0.5	35	A30S-1-66	Dry	500kg
Glucose	0.5	5, 20	A48S-2-888	Dry	2000kg
Granulated Sugar	1.0	14	A48S-1-88	Dry	6000kg
Orange Juice (Tsubu Tsubu)	1.0	5mm, 3mm	A48S-1-88	Wet	2000l
Palm Oil	0.9	20, 40	A60S-2-888	Wet	30t/hr
Powder Soup	0.7	6, 80	A18S-1-33	Dry	230kg
Rice Bran	0.5	16	A30S-1-66	Dry	500kg
Sauce	1.0	100	A48S-1-88	Wet	6000l
Skim Milk Powder	0.58 – 0.7	24	A60S-1-88	Dry	6000kg
“Tofu” Slurry	1.0	120	A40S-1-66	Wet	2000l
Topica Starch	1.0	200	A48S-1-88	Wet	18000l
Wheat Starch	1.0	150 250	A18S-1-33 A48S-1-88	Wet Wet	1000l 3000l
• MEDICALS					
Health Food/Medicals	1.2	40, 80	A40S-2-666	Dry	200kg
Injection	1.0	ø1mm	A18S-1-33	Wet	600l
Medical Powder	0.8	80	A18S-1-33	Dry	420kg
• METAL					
Aluminium Powder	0.7	80, 120	A18S-1-33	Dry	300kg
Brass Powder	1.5	100, 200, 325	A40S-3-6666	Dry	100kg
Electrolytic Copper Powder	1.3 – 2.3	24	A40S-1-66	Dry	200kg
Gold Bronze Powder	2.0	100	A18S-1-33	Dry	50kg
Iron Powder	2.8	400	A18S-1-33	Dry	200kg
Manganese Carbonate	3.7	60	A30S-1-66	Dry	250kg
Manganese Dioxide	2.0	60	A40S-1-66	Dry	1500kg
Powder for Alloys	3.0	200	A18S-1-33	Dry	200kg
Steel Shot	4.0	4, 8, 42	A18S-3-3333	Dry	1000kg
Titanium Dioxide	2.1	16	A18S-1-33	Dry	500kg
Tungsten	8.3	20, 60, 100	A30S-3-6666	Dry	300kg
Welding Powder	0.95	20, 200	A40S-2-666	Dry	500kg

Note:

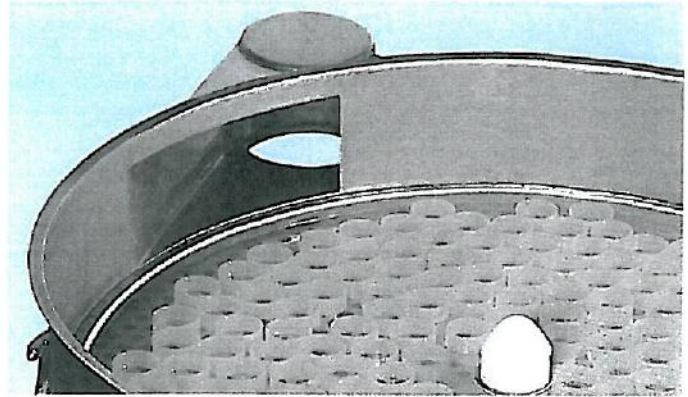
In the item of dry/wet, “dry” denotes that the input material is so dry that it flows and has no free moisture, and “wet” denotes that the input material is so wet that it should be processed in slurry.

Process rates listed are the examples which were offered by the sampled users of AMKCO Vibra-screen. The data may be used as reference. All data are to be evaluated in accordance with product, properties, specific gravity of input material, screen mesh, ambient temperature and humidity.

SCREEN BLINDING PREVENTION

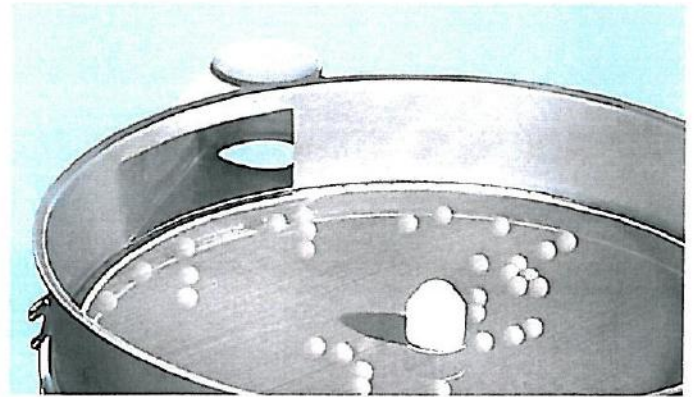
SCREEN CLEANING RINGS

Screen cleaning rings (sliders) are supported closely below the screen by a stainless steel perforated plate or a courser screen. Vibration of the separator causes the sliders to rub against the bottom surface of the screen. This action helps prevent screen blinding by creating shearing forces that cut fibers and scrape away gummy materials. The sliders operate with 1 to 2mm of clearance, are hollow to promote product flow, and are available in a variety of materials for increased chemical, temperature, or abrasive resistance.



BALL TRAY

The Ball Tray is a system that is especially appropriate for two different types of blinding problems. One type of situation is for near size, dry material screening. The second is for material that tends to agglomerate on the top of the screen. The bouncing balls flex the screen slightly, dislodge material that may be stuck in the wires, and also lifts the material to keep it flowing. A ball support screen is mounted below the operating screen.



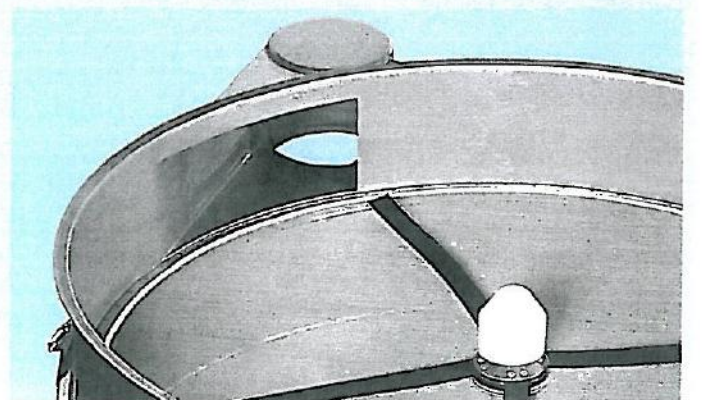
ULTRASONIC

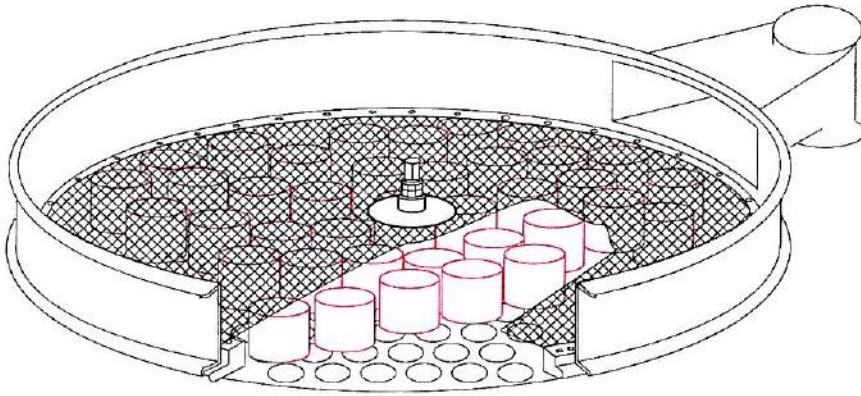
Ultrasonic is an add-on secondary vibration to the primary vibrating screen. The secondary vibration operates at high frequency (36kHz) to generate an additional uniform vibrating motion of 5 microns to the screen mesh. This reduces the friction between the screen mesh and the product which can result in a better flow of product thru' the mesh.



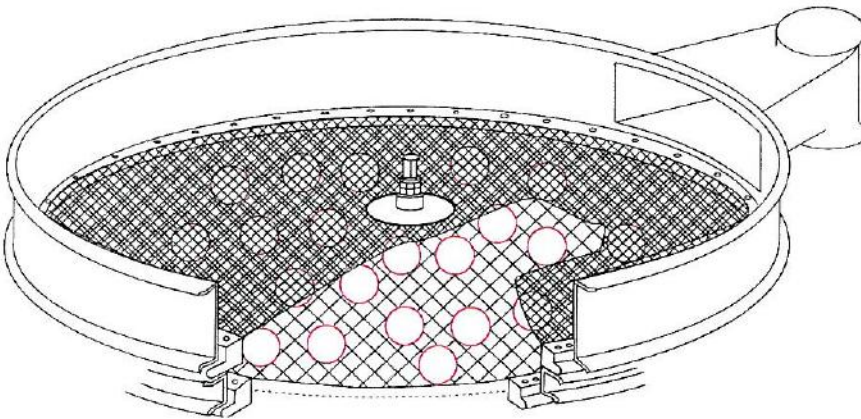
WIPERS

These are soft strips that tap lightly on the top surface of the screen. The vibrating motion of the separator flex the strips to tap on the screen. It helps to break up lumps and push the "under" size product thru' the screen mesh.

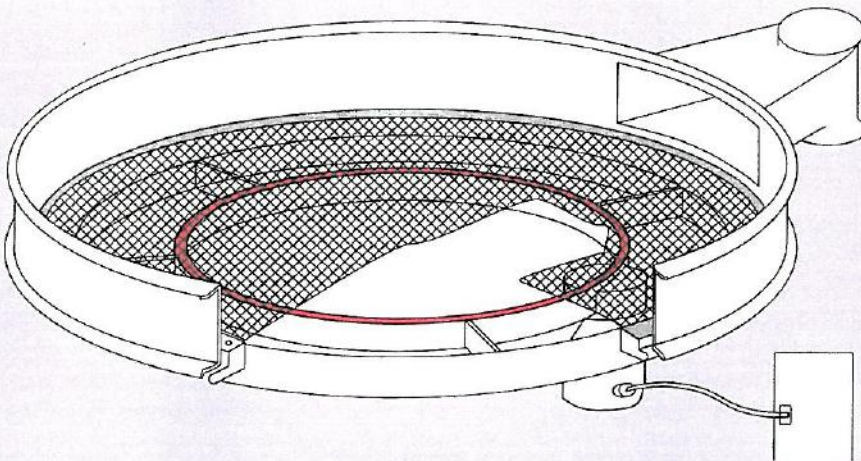




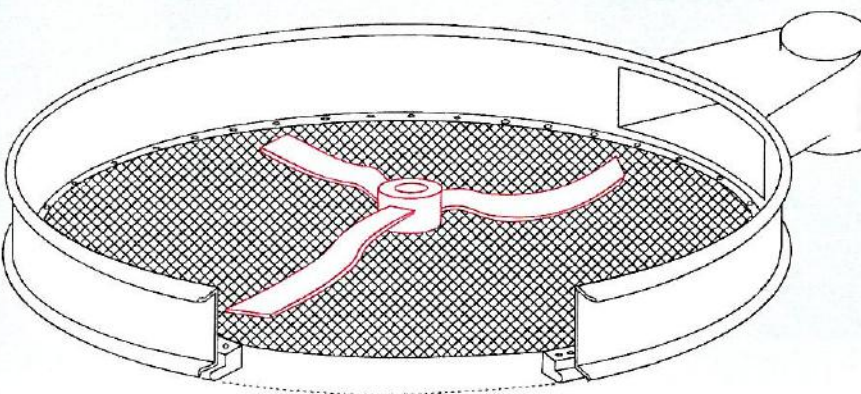
These rings are commonly available in polyester, food grade nylon and polyurethane with excellent wear resistance. Available in single ring or cluster. In heights of 22 and 23 mm.



These bouncing balls are available in natural rubber, neoprene, silicone, EPDM, polyurethane and nitrile. Sizes range from 16, 22, 25, 28, 35 and 50 mm in diameter.



Sonoscreen can be installed or retrofitted in any operational vibrating screen. Items needed are an ultrasonic generator, ultrasonic screen resonator with transducer and high frequency cable connector.


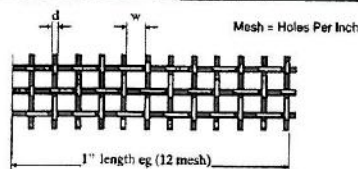


Common materials for this wiper are neoprene or polyurethane.

AMKCO SCREENS AND SPARE PARTS



SCREEN MESH & OPENINGS

TENSIL BOLTING CLOTH (TBC)				MARKET GRADE (MG)			
Opening In Microns	% Open Area	Wire Dia. mm	Mesh Count	Opening In Microns	% Open Area	Wire Dia. mm	Mesh Count
				11.099	76.4	1.600	2
				10.668	70.6	2.032	
				7087	70.1	1.371	3
				5138	65.9	1.206	4
				4750	56.0	1.600	4
				4038	63.2	1.041	5
				3347	62.7	0.883	6
				2743	57.2	0.889	7
				2448	60.2	0.726	8
				1885	56.3	0.655	10
				1854	64.5	0.457	11
				1532	51.8	0.584	12
1359	73.3	0.228	16	1295	51.0	0.518	14
1158	70.2	0.228	18	1130	50.7	0.460	16
1041	67.2	0.228	20				
965	69.7	0.190	22	981	48.3	0.439	18
868	67.2	0.190	24	876	46.2	0.411	20
787	64.8	0.190	26				
716	62.4	0.190	28	704	44.2	0.355	24
681	64.8	0.165	30				
630	62.7	0.165	32				
582	60.7	0.165	34				
541	58.7	0.165	36	516	37.1	0.325	30
503	56.7	0.165	38				
470	54.8	0.165	40				
465	59.1	0.139	42				
437	57.4	0.139	44	447	37.9	0.299	35
411	55.8	0.139	46				
389	54.2	0.139	48	381	36.0	0.264	40
368	52.6	0.139	50				
348	51.0	0.139	52				
330	49.4	0.139	54				
323	54.6	0.114	58				
310	53.3	0.114	60				
295	51.7	0.114	62				
282	50.7	0.114	64				
269	54.9	0.094	70				
259	53.8	0.094	72				
249	52.7	0.094	74				
241	51.7	0.094	76				
231	50.6	0.094	78	233	30.5	0.190	60
224	49.6	0.094	80				
213	49.8	0.089	84				
200	47.9	0.089	88				
193	47.8	0.089	90				
180	45.0	0.089	94	178	31.4	0.140	80
165	46.9	0.076	105				
147	47.3	0.063	120	140	30.3	0.114	100
119	46.4	0.055	145	114	30.5	0.094	120
106	47.1	0.048	165	104	37.9	0.066	150
86	46.2	0.040	200	88	35.1	0.061	170
74	46.0	0.035	230	74	33.6	0.053	200
<p>All screen listed are square mesh. Commonly available in 304/316 stainless steel. Some meshes are also available in polyester or nylon, anti-static or magnetic stainless steel.</p>				61	36.0	0.040	250
				53	32.2	0.040	270
				43	30.8	0.035	325
				38	36.0	0.025	400
				25	25.0	0.025	500
				20	25.0	0.020	635