One Source

Wemco Screw Classifiers

FLSmidth

Wemco® Classifiers

Leaders in Classification

FLSmidth has provided quality equipment to the mining industry since the early 1900s. Through years of intensive research and development in classification, FLSmidth has become established as "Classification Engineers" throughout the world utilizing its Wemco technology.

Today, we provide economical and progressive classification methods for the mineral dressing industry, coal preparation and beneficiation, sand preparation, and chemical processing industries.

Within this brochure you will find classification and separation devices to fill your needs, whether they be for classification, desliming, or dewatering.

Each Wemco unit is unique, and is loaded with advantages and benefits to make your job easier, and your company more productive. FLSmidth delivers quality, economical operation, superb engineering, experience and service.

S-H Classifier

Wemco® S-H Classifiers are used for washing and dewatering pulps, and in closed-circuit grinding. Because wet classifications, problems and users' needs vary greatly, the Wemco S-H Classifier is available in a wide range of spiral diameters and pitches, tank shapes and lengths, allowing exact compliance with each user's classification requirements.

Features

- 15 spiral diameter sizes
- Available in three standard spiral pitch sizes
- A variety of spiral lengths and speeds can be selected depending on the application
- Three standard tank sizes
- Three pool depth series
- Motorized hydraulic, manual hydraulic, and screw lifting device options
- The reliable drive arrangement consists of a heavy-duty main bevel gear flanged to the upper end of the spiral shaft and driven by a cast steel pinion mounted on the output shaft of an enclosed oil bath, worm gear speed reducer that is V-belted. Drive gears are enclosed in a grit-proof steel casing
- Large diameter tubular shaft is supported by upper and lower bearings
- Cast steel flight arms are short with a large cross-section that will resist big loads without bending
- Pre-formed steel flight sections bolt to the flight arms
- Abrasion-resistant wearing shoes are fastened to flights with countersunk bolts
- Patented upper and lower bearings. Heavy-case upper bearing housing is sealed with a spring-loaded shaft seal

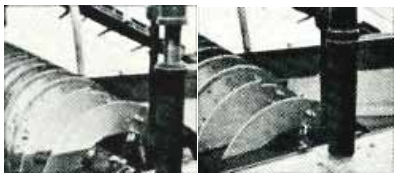
Exclusive mechanical features

Greater shaft strength

Wemco spirals are built around a large diameter tubular shaft supported by upper and lower bearings. Experience has shown that Wemco shafts carry greater loads without failure than small diameter, heavy walled shafts.

Sectionalized steel flights

A continuous helix is formed by heavy, pre-formed steel flight sections which bolt to the flight arms. While flights are subjected to very little wear, they are replaceable when necessary.



Replaceable wearing shoes

Abrasion-resistant wearing shoes are fastened to flights with countersunk bolts. Field data has proven exceptionally long life even on most abrasive applications and replacement costs at a fraction of one cent per ton of feed.

Mechanical & design features

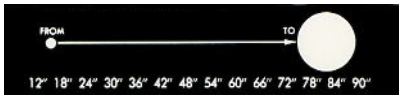
Long-lived anti-friction bearings

Patented upper and lower bearings assure long, trouble-free operation. The lower bearing is designed to be absolutely grit-free while operating in submerged position in the pulp. The lower bearing housing is flanged so that removal for inspection is easy and fast, without need to drain the tank. The heavy-case upper bearing housing is sealed with a spring-loaded shaft seal, and requires lubrication only once a month.

Simplified gear drive

The compactness, efficiency, and strength of the gear drive assembly used exclusively on Wemco S-H Classifiers is gained through the simplicity of the drive arrangement. The heavy-duty main bevel gear is flanged to the upper end of the spiral shaft. The gear is driven by a cast steel pinion mounted on the output shaft of an efficient, enclosed oil bath, worm gear speed reducer that is V-belted to a drive motor. Drive gears are enclosed in a grit-proof steel casing.

Design features

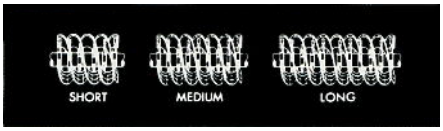


Spiral diameters

Important in establishing a correct balance between overflow and raking capacity. Bears directly on accuracy of separation and control of agitation.

Spiral pitch

(For Sand-removal Capacity)
Number of ribbons is a factor in controlling degree of agitation. Each ribbon of advanced pitch gives greater raking capacity than equivalent ribbon of spiral using less pitch. Triple ribbon spiral is highly advantageous for slow-speed operations requiring close separations and high raking capacities. Vari-pitch spirals are also available.



Spiral Length

Any desired length for practical operation can be furnished for desliming and dewatering operations to assure maximum sand drainage. Length modifications are made by adding or deleting one or more flight increments and making corresponding adjustments in tank length. An especially important feature in achieving "closed circuits" in ball-mill classifier installations.

Adjustable Spiral Speeds

Recommended speed of operation given in peripheral FPM is an individual consideration for each ore, and is governed by size, shape and gravity of particle, angle of repose of raking load and desired mesh of separation. Peripheral speeds between 20 and 200 ft. per minute are available.

Style of Tank

Straight tank styles recommended for coarse separations and where pulps contain slimes having a tendency to build up on flaring sides. Modified flare recommended for 65 mesh and finer separations to gain increased pool area over straight-side tanks without increasing spiral diameter. Full-flare tanks recommended for 100 mesh and finer separations, depending upon settling characteristics of ore, especially preferred where maximum pool area and overflow weir widths are required.

Pool Depth

Choice of pool depth is directly related to effectiveness of pool area. Series 90 units are employed for coarse separations on down to 65 mesh; Series 125 units are employed for separations between 48 and 150 mesh; Series 150 units are employed for separations of 100 mesh and finer. Eddy currents and pool agitation decreases as pool depth or spiral submergence is increased.

Lifting Device

Lifting device eliminates necessity of draining tank during shutdowns. Classifier may be quickly put in operation after shutdown with tank fully sanded. Procedure is to raise spiral, start it turning and lower slowly. (Within limits, separation can be coarsened by operating with spiral in slightly raised position.) Hydraulic-type standard on all units 48" in diameter and larger. Fast-action handwheel-operated screw-type lift standard on 42" and smaller.

High volume classifier

The Wemco No. 24 Spiral Classifier is designed to settle and dewater relatively coarse particles from high volume, low percent solid streams. It will separate suspended particles at 35 mesh at a flow rate of 5000 GPM. The special design of this unit also permits it to hydraulically transfer surges of up to 10,000 GPM of wastewater without overflowing.

Features

- Wearing shoes in two sections
- Sectionalized flights
- Adjustable spiral speeds to fit specific needs
- Motorized, hydraulic spiral lifting device
- Anti-friction upper and lower bearings

Benefits

- Low initial cost
- Low operations costs, die in part to anti-friction, trouble-free bearings
- Individually replaceable components keep maintenance costs low
- Motorized lifting device eliminates costly overhead frames and necessity of draining the tank during shutdowns

Model E classifier

The Model E Classifier is designed to efficiently separate particles from liquids and slimes; coarse from fine particles.

All sand prep equipment takes a lot of punishment and, sooner or later, you must repair or replace parts. Wemco's Model E Classifier makes that job easier and less expensive.

A major replacement item is the wearing shoe. With Model E, you only replace the section you need. The abrasion-resistant tank liner lasts a long time, but not forever. Bolted construction makes replacement easy.

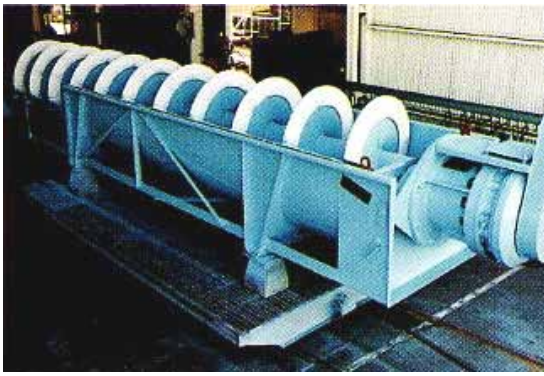
The unique low horsepower lifting device allows repair and replacement without draining the tank and equals lower operating costs than high starting torque motors.

Features

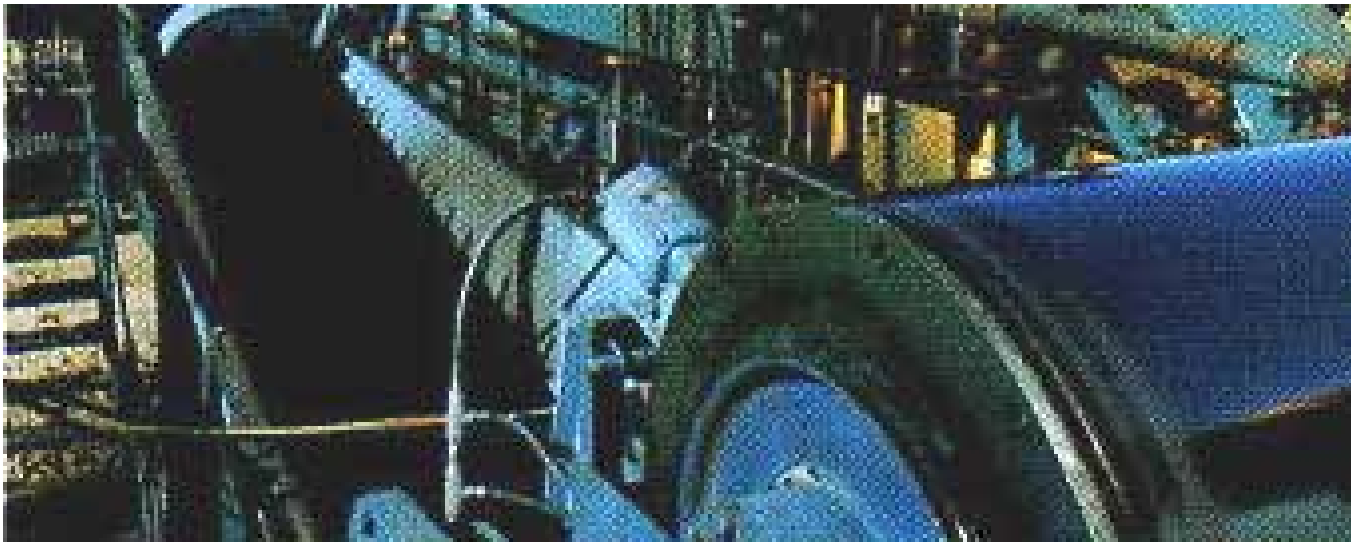
- The wearing shoe comes in two sections; a cast NI-HARD outer high-wear area and an abrasion-resistant steel plate inner low-wear area.
- Speed reduction via high quality cyclo-drive
- Bolted, abrasion-resistant steel tank liner
- Longer tank and spiral length for better dewatering
- Because fresh water hookups are troublesome and inefficient, Wemco classifiers use true grease-lubricated submerged bearings
- Low horsepower
- Includes integral feed and overflow box
- 50% pitch spiral welded to the shaft is efficient for fines raking

Benefits

- Because the wearing shoe comes in two sections, only the worn section has to be replaced
- Tank liner is easy to replace
- Grease-lubricated bearings eliminate reliance on troublesome and inefficient waterflush bearings
- Unique lifting devices eliminate costly and burdensome overhead frames and necessity of draining the tank during shutdowns
- Low horsepower equals lower maintenance costs, longer motor life, and reduced maintenance
- A wide variety of spiral options are available to meet all needs
- The variety of spiral diameters allows accurate separation and control of agitation
- To assure maximum sand drainage, spiral length modifications are possible
- Depending on separation requirements, three pool depth series are available
- Lifting devices eliminate



Wemco Densifier



Used in conjunction with heavy media separation (HMS) system, the spiral densifier returns reclaimed, thickened media to the HMS circuit. The densifier also provides live storage of cleaned media, which can be utilized immediately by raising or lowering the densifier spiral. The densified medium discharge passes through a demagnetizing coil to assure a non-flocculated, uniform suspension in the separatory vessel.

Features

- Motorized, hydraulic spiral lifting device
- Adjustable spiral speeds
- Anti-friction upper and lower bearings
- Heavy-duty construction

Benefits

- Motorized lifting device eliminates costly overhead frames and necessity of draining the tank during shutdowns
- Anti-friction bearings assure long, trouble-free operation
- Low maintenance costs due to heavy-duty construction

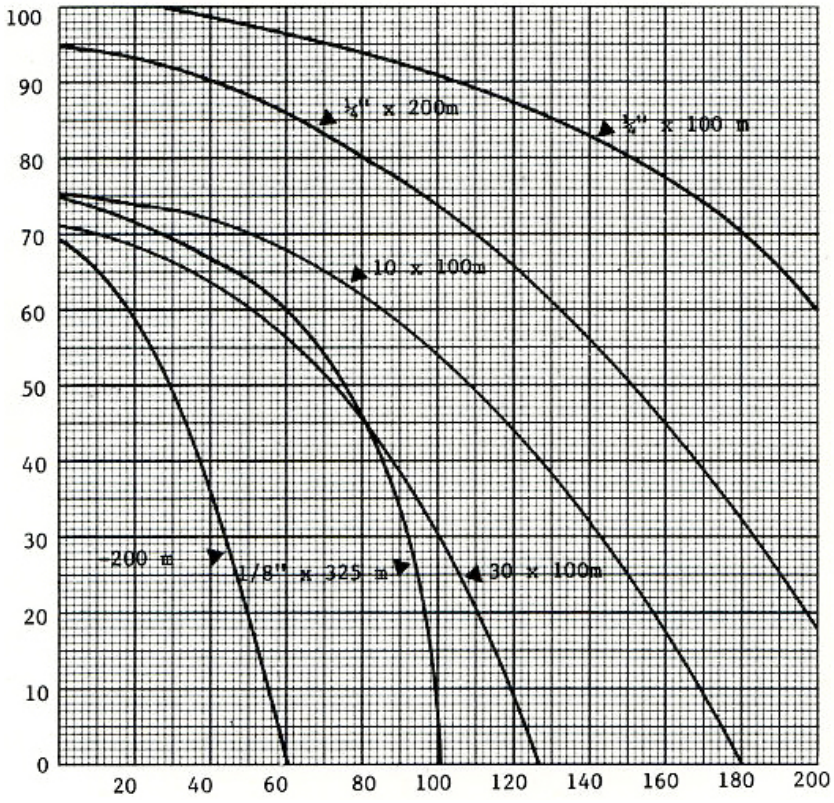
Wemco Classifiers

Spiral	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	
RPM															RPM
1	3.1	4.7	6.3	7.9	9.4	11	12.6	14.1	15.7	17.3	18.8	20.5	22	23.5	1
2	6.3	9.4	12.6	15.7	18.8	22	25.0	28.5	31.5	34.5	37.5	41.0	44	47.0	2
3	9.4	14.1	18.8	23.5	28.5	33	37.5	42.5	47.0 30.8	52.0 41.8	56.5 52.4	61.0 67	66 85	70.5 104	3
4	12.6	18.8	25.0	31.5	37.5	44	50.0 22.4	56.5 30.8	63.0 41.2	69.0 55.2	75.5 69.8	81.5 82	88 117	94.0 138	4
5	15.7	23.5	31.5	39.5	47.0	55	63.0 28.0	70.5 38.6	78.5 51.6	86.5 68.6	94.0 87.2	102.0 117			5
6	18.8	28.5	37.5	47.0	56.5 14.0	66 22.5	75.5 33.6	85.0 46.3	94.0 62.0	103.5 82.0					6
7	22.0	33.0	44.0	55.0	66.0 16.4	77 26.4	88.0 39.2	99.0 54.0	110.0						7
8	25.0	37.5	50.0	63.0	75.5 18.8	88 30.2	100.5 44.8								
9	28.5	42.5	56.5 8.6	70.5 12.3	85.0 21.2	99 34.0									
10	31.5	47.0	63.0 7.3	78.5 13.7	94.0 23.6										
11	34.5	52.0	69.0 8.0	86.5 15.1	103.5 26.0										
12	37.5	56.5	75.5 8.7	94.0 16.4											
13	41.0	61.0	81.5 9.4	102.0 17.7											
14	44.0	66.0	88.0 10.1												
15	47.0	70.5	94.0 10.8												
16	50.0	75.5	100.5 11.5												
17	53.5 1.3	80.0 4.2													
18	56.5 1.4	85.0 4.4													
19	59.5 1.5	89.5 4.6													

■ RAKING CAPACITY
■ PERIPHERAL SPEED

BASED ON: 1) Single Pitch Spiral, Simplex. 2) Slope, 3½" p.ft. 3) Spec. Grav. Material, 2.70 4) Raking Efficiency, 100% Apply proper factors to obtain raking capacity.

FACTORS: 1) For Double Pitch, multiply by 1.9 - For Triple Pitch, multiply by 2.5 2) Specific Garvity: Multiply by S.G. of material and divide by 2.70. 3) Rake Slope: Increasing slope decreases capacity and vice versa. Example: For " p.ft., estimate 10 to 15% reduction. 4) Rake Efficiency: Apply Efficiency Factor



Look to FLSmidth for quality, economical operation, superb engineering, experience and expert help. Convenient service centers throughout the world provide parts and technical know-how when you need them.

Call today to find out how FLSmidth can install a new system or update an old one. Based on your input, we'll make a custom-tailored recommendation for your specific operation.

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