Sedimentation Equipment

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Spiral Dewaterer

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Metso Spiral Dewaterer consists basically of an open trough with arrangements for collection of the products.
The inlet flow is evenly spread out through a feed distributor.
Coarse material settles and is continuously removed by means of the transport spiral. The material will be dewatered by drainage in the upper part of the spiral before discharge. The discharge launder for the dewatered material is easily adjusted between two positions, allowing alternative discharge into two separate bins.

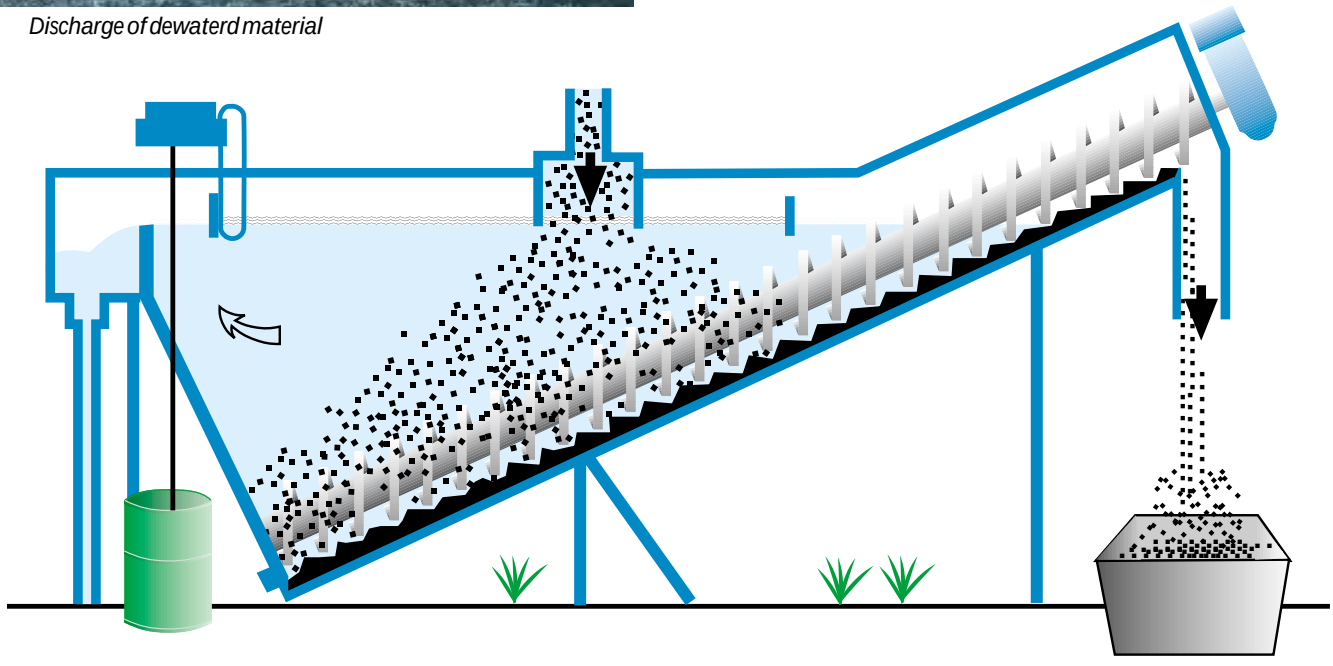
Discharge of dewaterd material

Optimal for Dewatering of Slag and Mill Scales

Washing effluents coming from the steel industry with high flows and a low to moderate content of well defined solids like mill scales and slag has been proven optimal for the spiral dewaterer. In the sedimentation tank the wash water is reclaimed and sent back to the washing operation again. The solids are removed by and dewatered in the discharge spiral and can be sent to recycling if this is considered of value.

Robust Design for Reliable Operation

Like the spiral classifier the spiral dewaterer consists basically of an open tank for sedimentation of solids and a transportation spiral for removal and dewatering of the settled product.
All machines have equal spiral diameter, 600 mm. The spiral flights are welded directly to the spiral shaft. The flight wear shoes are made of high chrome iron and are bolted to the flights. The submerged bearing assembly is of grease purged type and is lubricated every second week. The bearing pack can be disassembled and replaced without lifting the spiral out of the tank. Hydraulic spiral lifting device can be supplied as an option.
The drive consists of an electric motor, V-rope drive and speed reducer for reliable operation at low spiral speeds needed for low wear and improved dewatering.



Principle of operation

Feed distribution in a SD60-200.

Large pool area – for high flow applications

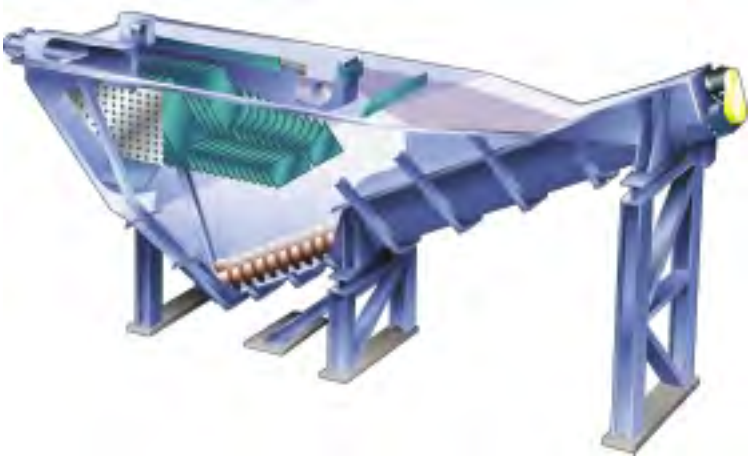
Typically for the spiral dewaterer is that the tank area is larger than for the spiral classifiers. This enables these machines to take on high flows with limited solids content, applications very common for different Industrial washing effluents. With the addition of in-clined lamella plates in the tank this gives settling areas from 8 up to 100 m^2 and flow rates up to 1600 m^3/h.

Oil skimmer as option

In some applications the feed contains oil and grease. These are floating products reporting to the clear water overflow. A special designed oil skimmer can be supplied for removal of these floating products.

Easy to Install and Maintain

The Spiral Dewaterer is generally delivered as a pre-fabricated unit complete with stairs, handrails and platforms. The larger units may in some cases be delivered in parts for erection on site.
After erection on a levelled foundation only power and pipes need to be connected.
The discharge launder for the dewatered product is then positioned over the discharge bin or bins as the launder can be adjusted in two positions.



Bearings

The submerged bearing assembly is of grease purged type and is lubricated every second week. The lower end bearing pack can be disassembled and replaced without lifting the spiral out of the tank. The upper end of the spiral is provided with lower end bearing pack can be disassembled and replaced without lifting the spiral out of the tank. The upper end of the spiral is provided with a spherical roller bearing in a standard bearing housing.

Service platforms

Optional service platforms and stairs can be provided to suit local conditions.

Lamella plate packs

In order to increase the sedimentation area of the tank, the spiral dewaterer can be supplied with lamella plate packs. The plates are arranged in two steel frames, easy to remove if required.

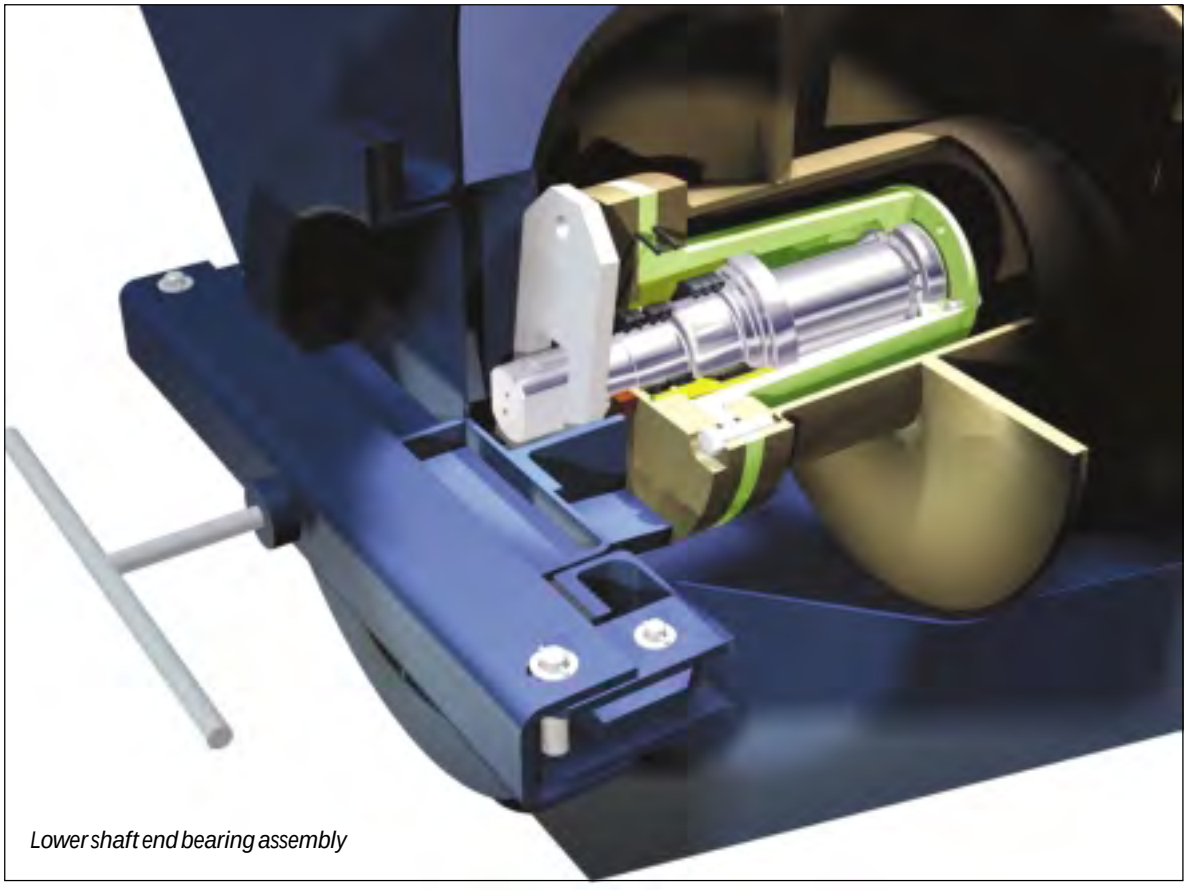
Hydraulic spiral lifting device

If discharge of solids is intermittent whilest the feed is continuous, a hydraulic spiral lifting device can be supplied as an option.

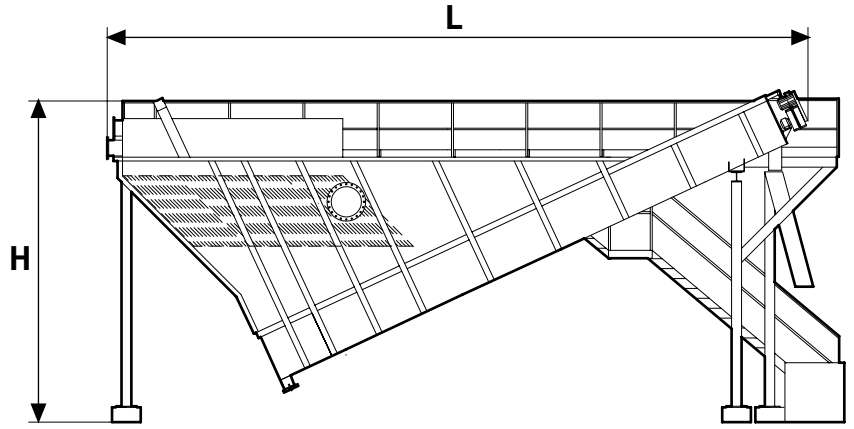
Spiral Dewaterer Model - SD

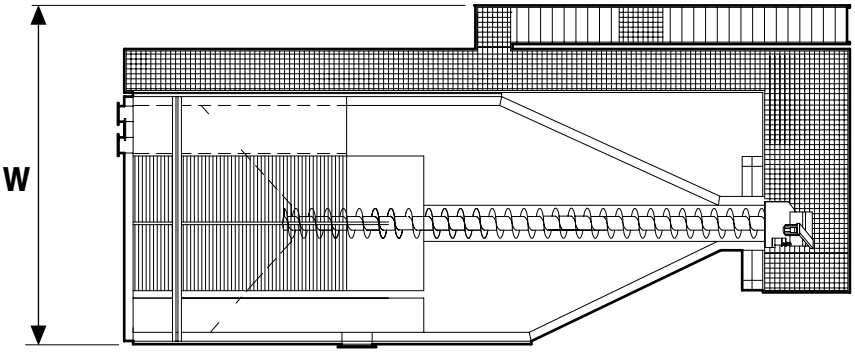
Metso Spiral Dewaterer Model SD is a robust evolution of the spiral classifier for reliable operations in mill scale handling.

The Spiral Dewaterer with special designed spiral and enlarge pool area is able to handle large flows of effluents, offering a well dewatered mill scale product and a clear overflow (typically 100 ppm).



Lower shaft end bearing assembly





Standard model	Settling area m²/ft²	H mm /inch	L mm /inch	W mm /inch	Power kW/hp	Weight ton/Lbs (empty)	Tank volume m³ /ft³
SD 60-8*	8/86	2 815/111	7 340/289	2 300/91	1,5/2	9,0/19,842	8/283
SD 60-10	10/108	3 160/124	8 370/330	2 300/91	1,5/2	9,3/20,503	12/424
SD 60-20	20/215	4 000/157	10 600/417	3 200/126	3/4	12,5/27,558	30/1,059
SD 60-25	25/269	5 350/211	11 100/437	4 500/177	3/4	13,8/30,424	44/1,554
SD 60-30	30/323	6 400/252	14 000/551	5 000/197	4/5	23,0/50,706	70/2,472
SD 60-38**	38/409	5 350/211	11 100/437	4 500/177	3/4	14,4/31,747	44/1,554
SD 60-100**	100/1,076	6 400/252	14 000/551	5 000/197	4/5	24,4/53,793	70/2,472

*60-8, 60 = spiral dia in cm (24inch) -8 = settling area 8m² (86ft²)
** With lamella plates

Standard options:

1. Stairs and service platform
2. Oil Skimmer
3. Manual decanter