

VORTEX GRIT SEPARATOR – Vortec

Circular hopper-bottom tank that separates grit from organics and lifts washed sand out.
Seven models, 2.7 to 52.6 MGD inlet flow.



2.7 to 52.6 MGD
in seven models



Sand washed free
of organics



Air-lift
sand extraction



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OPERATING PRINCIPLE

Vortec separates sand from organic material in a circular tank with a hopper bottom. Paddles on a central shaft stir the contents, and the spiral motion they create puts centrifugal force and gravity to work at the same time on everything in suspension.

Organic matter, being lighter, stays in suspension and leaves the tank with the flow. Sand, heavier than water, works down the conical bottom, where an air lift draws it out. The paddle shaft is driven by a gearmotor with worm or epicyclic gearing.



Vortec mechanism — drive, paddle shaft and air lift

- 1 Stirred separation**
Paddles set the tank turning, so centrifugal force and gravity act together
- 2 Organics stay up**
Lighter organic matter remains in suspension and spills out with the flow
- 3 Air-lift discharge**
Washed sand collects in the cone and is lifted out to a classifier or container

Vortec is normally the first mechanical step after screening, sitting ahead of the plant so that sand never reaches pumps, aeration basins or digesters. Extracted grit is usually sent to a Grittec classifier for dewatering before disposal.

FEATURES & BENEFITS



1 Vortex separation, not just settling

Paddles on a central shaft set the tank contents turning, so centrifugal force and gravity work together on the hopper bottom. Sand is driven down and out of the flow instead of being left to settle on its own.

2 Sand leaves washed

The same stirring keeps organic material in suspension, so it stays with the flow and spills out of the tank. What collects in the cone is mineral grit rather than a mixture of sand and organics.

4 Small drive, simple gearing

The paddle shaft runs on a gearmotor with worm or epicyclic gearing, from 1/2 HP on the smallest unit to 3 HP on the largest. That is the only powered element in the tank.

3 Air-lift extraction

Grit is drawn out of the cone by an air lift, 3-1/8 in or 3-15/16 in bore depending on model. No pump or mechanical conveyor sits in the sand path, which is where wear normally shows up first.

5 Equipment into a concrete tank

The unit drops into a circular concrete tank built to the dimensions on page four. Supplied scope is the mechanism, bridge and air lift.

PERFORMANCE

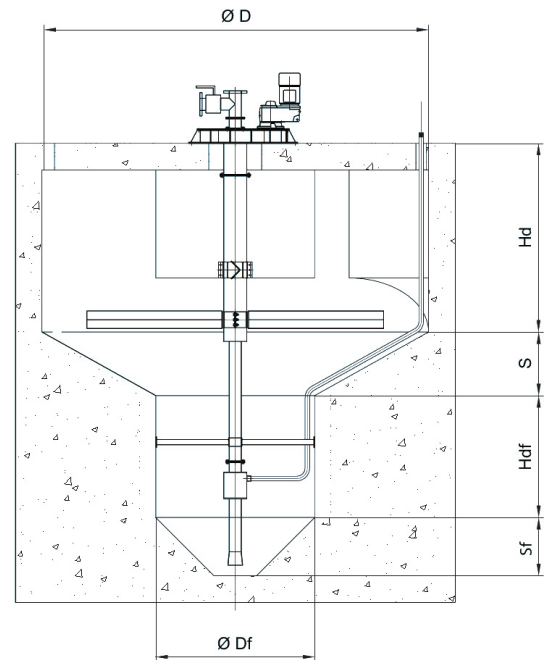
Model	Inlet flow (MGD)	Hopper volume (gal)	Power (HP)	Air lift dia.
Vortec 2000	2.73	800	1/2	3-1/8"
Vortec 2500	4.82	1,300	3/4	3-1/8"
Vortec 3000	7.73	2,250	1	3-1/8"
Vortec 3500	11.86	3,450	1	3-1/8"
Vortec 4000	20.03	5,300	1-1/2	3-15/16"
Vortec 5000	31.70	9,000	2	3-15/16"
Vortec 6000	52.62	14,500	3	3-15/16"



DIMENSIONS

Concrete tank dimensions for each model. The supplied scope is the mechanism, bridge, paddle shaft and air lift; the tank is built on site to these figures.

- Ø D** tank diameter
- Ø Df** hopper diameter
- Hd** side water depth
- S** cone transition
- Hdf** hopper depth
- Sf** cone height
- C** outlet dimension



Model	Ø D	Ø Df	Hd	S	Hdf	Sf	C
Vortec 2000	6' 6-3/4"	3' 3-3/8"	4' 3-3/16"	0' 11-13/16"	2' 3-9/16"	1' 11-5/8"	1' 3-1/4"
Vortec 2500	8' 2-7/16"	3' 3-3/8"	4' 5-1/8"	1' 3-3/4"	2' 3-9/16"	1' 11-5/8"	1' 3-1/4"
Vortec 3000	9' 10-1/8"	4' 11-1/16"	4' 9-1/16"	1' 5-11/16"	3' 3-3/8"	2' 7-1/2"	1' 3-1/4"
Vortec 3500	11' 5-13/16"	4' 11-1/16"	5' 1"	1' 11-5/8"	4' 3-3/16"	3' 3-3/8"	1' 7-11/16"
Vortec 4000	13' 1-1/2"	4' 11-1/16"	5' 6-15/16"	2' 7-1/2"	4' 3-3/16"	3' 3-3/8"	1' 11-5/8"
Vortec 5000	16' 4-7/8"	4' 11-1/16"	6' 0-13/16"	3' 3-3/8"	5' 3"	3' 11-1/4"	2' 5-1/2"
Vortec 6000	19' 8-1/4"	4' 11-1/16"	6' 4-3/4"	4' 3-3/16"	5' 3"	3' 11-1/4"	3' 7-5/16"

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