

Open and Closed Circuit Hydrocyclones

Cavex® hydrocyclones offer maximum efficiency, maximum capacity and lower operating costs than conventional cyclones.



Unique design

Cavex® hydrocyclones feature a unique laminar spiral inlet geometry designed to deliver maximum efficiency, maximum capacity, and longer wear life than conventional involute or tangential feed cyclone designs. Not just a cone modification, Cavex hydrocyclones utilize an entirely new feed geometry that substantially increases hydraulic capacity while minimizing localized wear on the feed chamber and vortex finder. These design improvements result in lower operating costs and fewer cyclones required for a given duty.

For grinding circuit applications, Cavex cyclones increase circuit capacity by minimizing the quantity of fines bypassing to the underflow stream. Cavex hydrocyclones achieve these results by maximizing the air core diameter created within the rotating mass of fluid in the cyclone. These effects are proven in both laboratory testing and full scale plant operation.

Cavex hydrocyclones deliver extraordinary performance.

Maximum efficiency

It's all by design – Cavex cyclones provide maximum efficiency by reducing turbulence. Laminar spiral inlet geometry provides a natural flow path into Cavex cyclones. This unique shape has no sharp edges and no square corners.

A smooth shape for abrasive slurries is simply common sense.

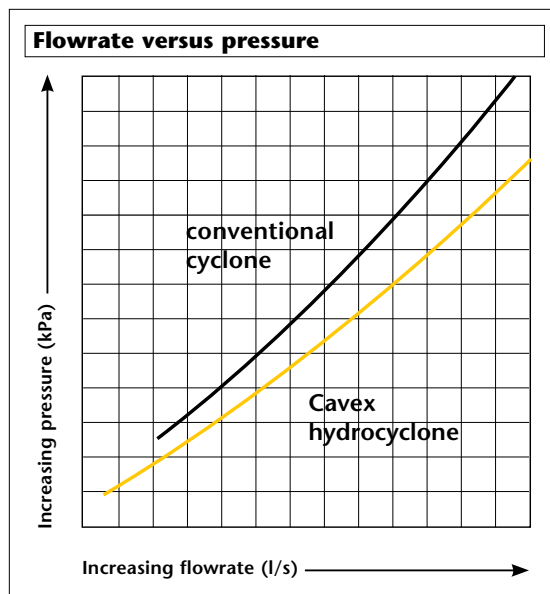
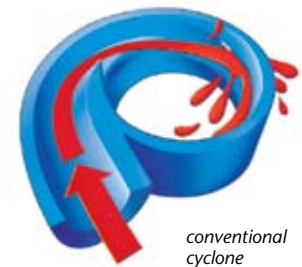
Turbulence is the cause of uneven wear in hydrocyclones. Revolutionary designed Cavex cyclones reduce turbulence resulting in multiple wear life increases for mill cyclone users.

In conventional cyclones, slurry bursts into the cylinder with no flow control and the resulting turbulence is responsible for gouging liner walls.



Left: A controlled feed stream blends progressively and smoothly so turbulence is reduced throughout the Cavex cyclone.

Below: Liner failure in conventional cyclones is highly localized while major portions remain unworn.



Cavex hydrocyclones use less power to pass fluids at comparable inlet velocities because of less turbulence and a larger blend zone, allowing slurry to flow through more freely than conventional cyclones.

Maximum capacity

Improved flow means you can do more with less – less power consumption and fewer cyclones.

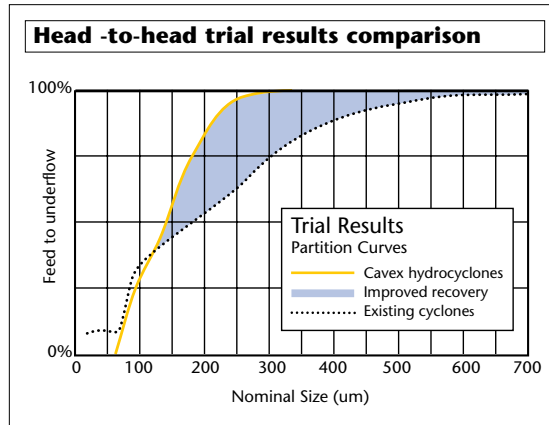
By minimizing resistance of flow through the feed chamber, Cavex cyclones process substantially higher slurry volumes than conventional cyclones with equivalent fittings. This increased productivity effectively reduces the quantity of cyclones required and/or reduces the energy required to perform a given duty.

Weir Minerals doesn't just claim to lower your operating costs. We have field tests to prove it.

Lower operating costs

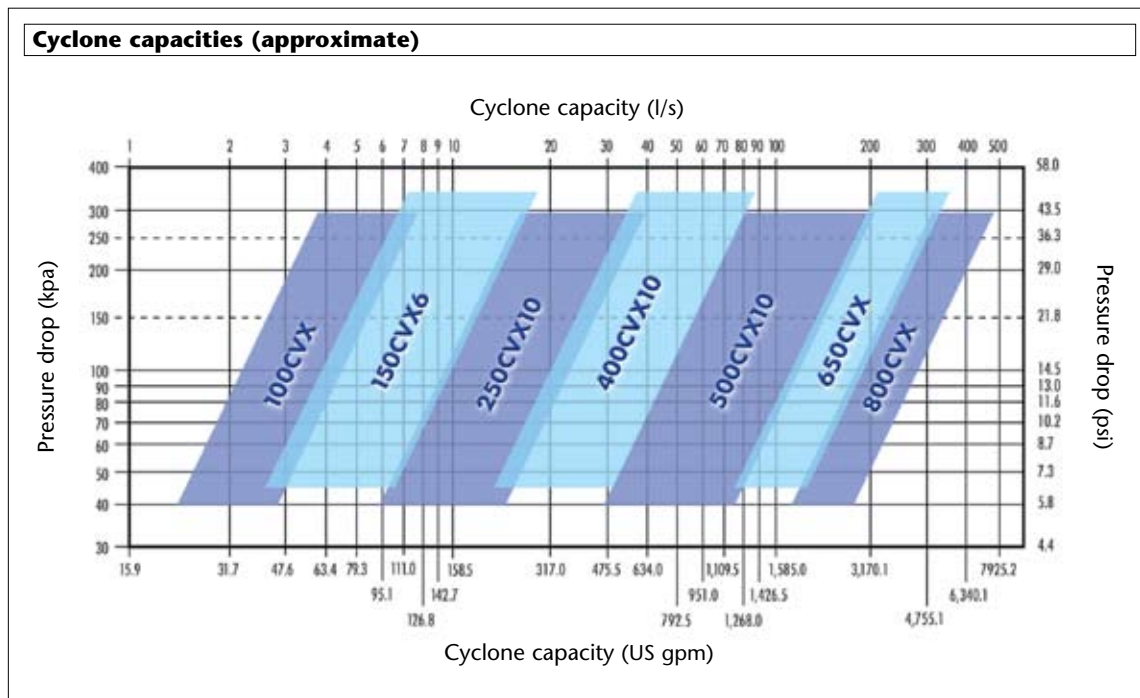
Cavex hydrocyclones can lower your operating costs, just as they did in the following case studies.

- Get the same grind at higher tonnage**
 The efficient classification of Cavex cyclones at the Osborne Mine in Australia produced a lower P80 and a lower circulating load. This allowed Osborne to increase tonnage at the original P80.
- Increase metal recovery**
 At the Zinkgruven Mine in Sweden, eight Cavex cyclones replaced eight conventional style cyclones. Less coarse particles in the flotation feed gave an additional increase of 0.5% metal recovery. Payback on the Cavex installation was calculated at 28 days.
- Increase wear life by 300%**
 A Cavex hydrocyclone was placed in a cluster of 14 conventional style cyclones at the Bronzewing Gold Mine in Western Australia. Conventional style feed chamber liners, 25 mm thick, averaged 1200 hours when worn through. The Cavex rubber feed chamber liners, 25mm thick, averaged 3750 hours – a 300% increase in wear life. All cyclones are now Cavex.



Results of head-to-head trials in a gold mining operation closed circuit grinding with a feed slurry of 65% w/w. Major reduction of the >300 micron particles from the overflow increased gold recovery. Wear life of the Cavex liners was three times longer.

- Improve leach kinetics**
 The graph above shows the cyclone efficiency curves prepared by operations staff. The inclusion of the Cavex cyclones, along with other plant modifications, increased gold recovery at Bronzewing.



Contact your local representative for a complete range of sizes and materials.

Models 500, 650, and 800 design features

- Laminar spiral inlet geometry
- Fabricated steel or cast ductile iron casings*
- Replaceable, elastomer liners, up to 1.5" thick. Ceramic lower cone available
- Rubber vortex finders
- Rubber, or ceramic spigots
- Rubber lined steel overflow pipe or "Air Core Booster" cap available

** cone casings on Model 500CVX10 are polyester fiberglass and fabricated steel*



Models 100, 150, 250, and 400 design features

- Laminar spiral inlet geometry
- Reinforced polyester resin casing
- Snap fit, replaceable, elastomer liners
- 316L ss quick release clamp fasteners
- Poly or Hyperchrome vortex finders
- Rubber, urethane, or ceramic spigots
- Molded HDPE or elastomer lined steel overflow pipes

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