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MINCO TECH

EMI CENTRIFUGAL
& MECHANICAL
INDUSTRIES

CYCLONES



Heavy Media Cyclones

MINCO TECH'S design philosophy, regarding heavy media cyclone separation, is based on extensive and successful research carried out over the past 60 years.

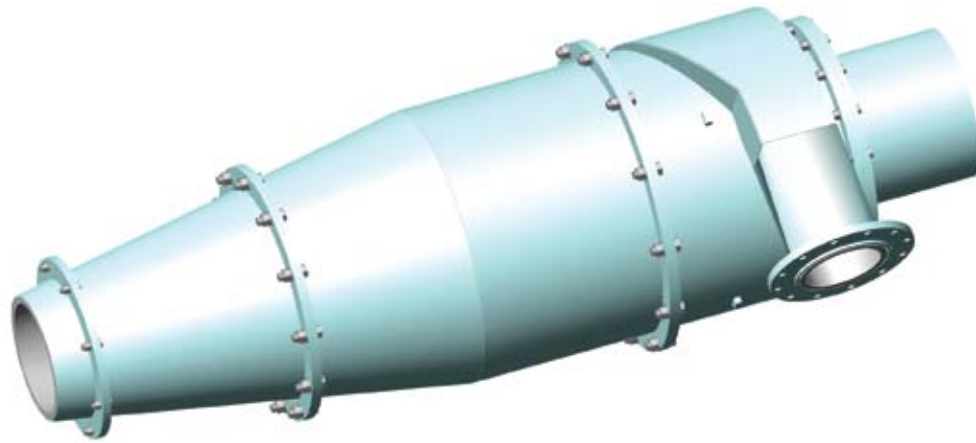
Research such as DSM carried out in the 1950's and the extensive work by the Julius Krittchnitt Mineral Centre (JKMRC) in Queensland, Australia during the 1990's helped develop the mathematical model allowing for the creation of the Dense Media Handbook. This research generated the JK cyclone simulator and modelling program. Much of this research has been carried out with Minco Tech cyclones.

Further extensive cyclone research was also carried out by the Australian Coal Association Research Program (ACARP). This work assisted with improving performance parameters, especially with cyclone feed inlet design.

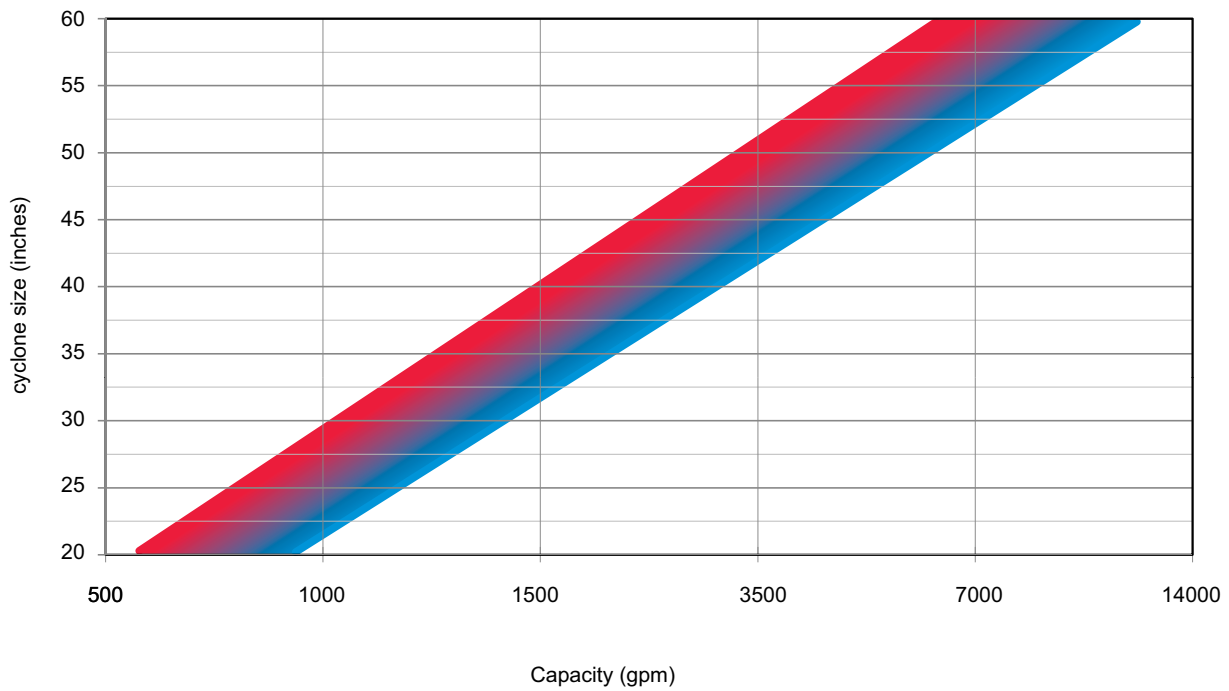
Minco Tech cyclones are modelled with consideration given to the above mentioned research and also supported by results from hundreds of installations throughout the world. These cyclones are achieving maximum yields and efficiency in sizes from 2" to 60" and feed rates of 10 tons per hour to 1000 tons per hour.



Heavy Media Cyclones

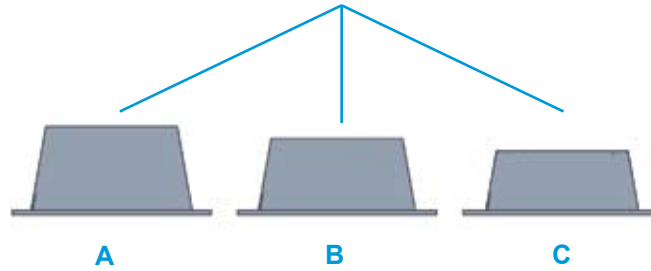


Heavy Media Cyclone Capacities



Heavy Media Cyclones

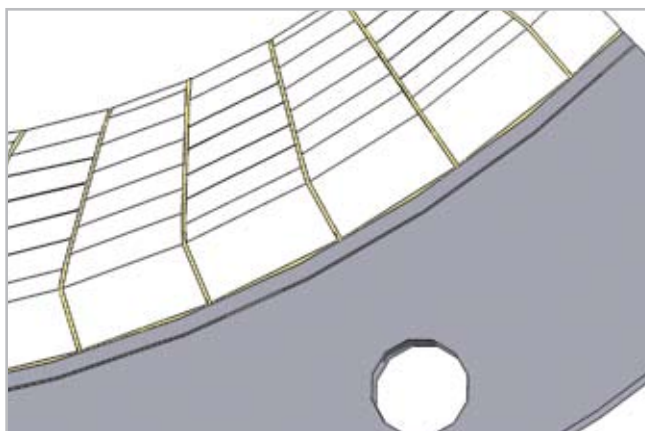
BORE INCREASED TO COUNTERACT
WEAR IN CYCLONE BODY



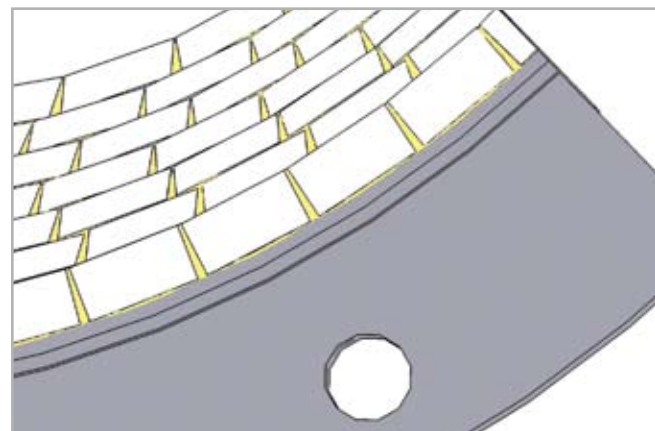
Supplied initially with 'A' Nozzle (Spigot, Apex)



PRE-ENGINEERED TILES

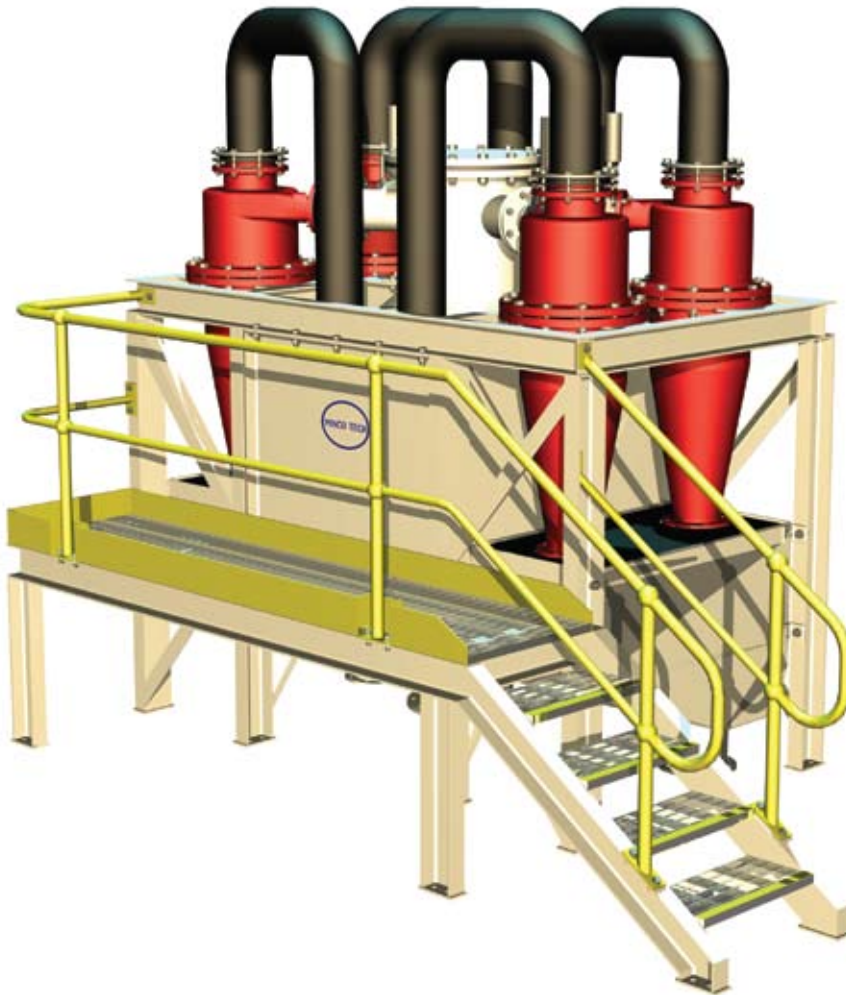


STANDARD FLAT TILES



Classifying Cyclones

Designing Cyclones



4 x 15 inch Cyclone Cluster

Since 1978 Minco Tech has specialized in the design and supply of cyclones to the mineral processing industry. Many design components combine to ensure the maximum performance of our Minco Tech classifying cyclone. Design parameters regarding inlet shape and area, vortex finder diameter, length, body extension, cone angle and apex nozzle are extremely important. Other features, including material selection and cluster design, ensure that the cyclone offered for any particular process has an individuality that guarantees efficiencies. Using this approach Minco Tech optimizes a system for each project for the processing of minerals such as gold, nickel, diamonds and coal. Today Minco Tech designs and provides the most efficient cyclones operating in the world today, endorsing our continuing vision of true excellence.

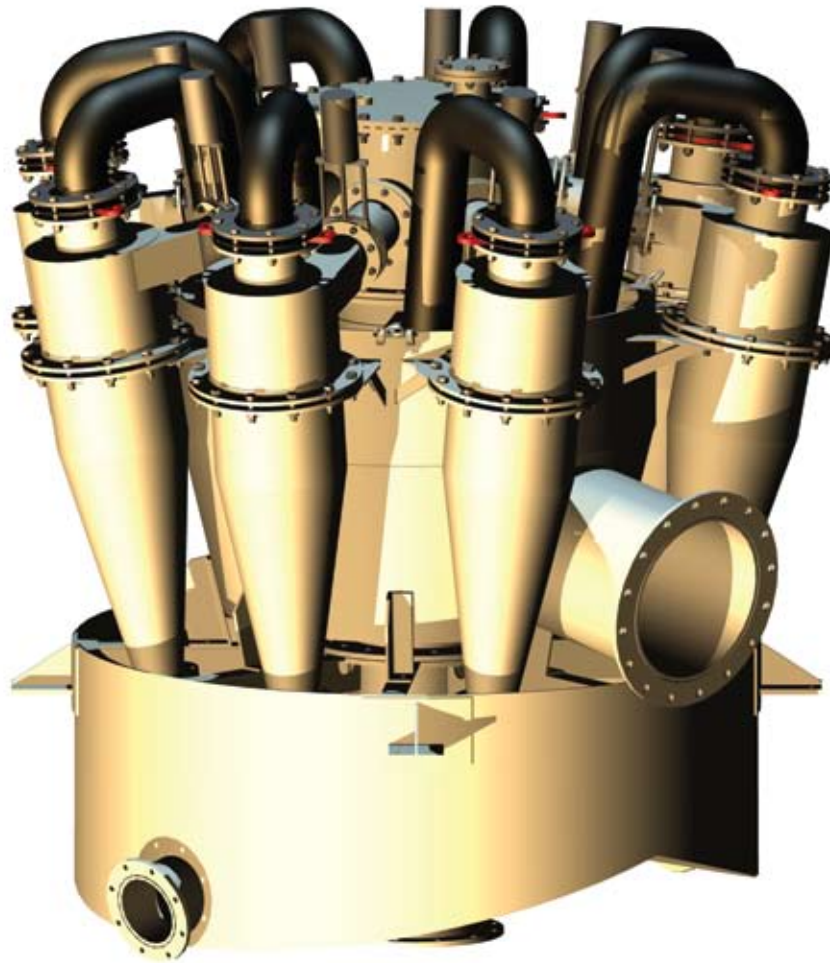
Continuing Research & Development

Research and development rate highly on our priority list. In cooperation with national experts, we are constantly testing our new theories and undertaking practical research both in the field and in the laboratory. Minco Tech, along with research and

development partners, has been a world leader in cyclone technology. Cyclone performance predictions are accurately modelled with computer programs specifically developed for classifying cyclones. These include the JK SimMet and Minco Tech

computer programs. Further research continues to develop cyclone geometry and improve flow patterns within an operating cyclone. This work will enhance our computerized performance modelling.

Classifying Cyclones



8 x 20 inch Cyclone Cluster

Ensure Maximum Efficiency

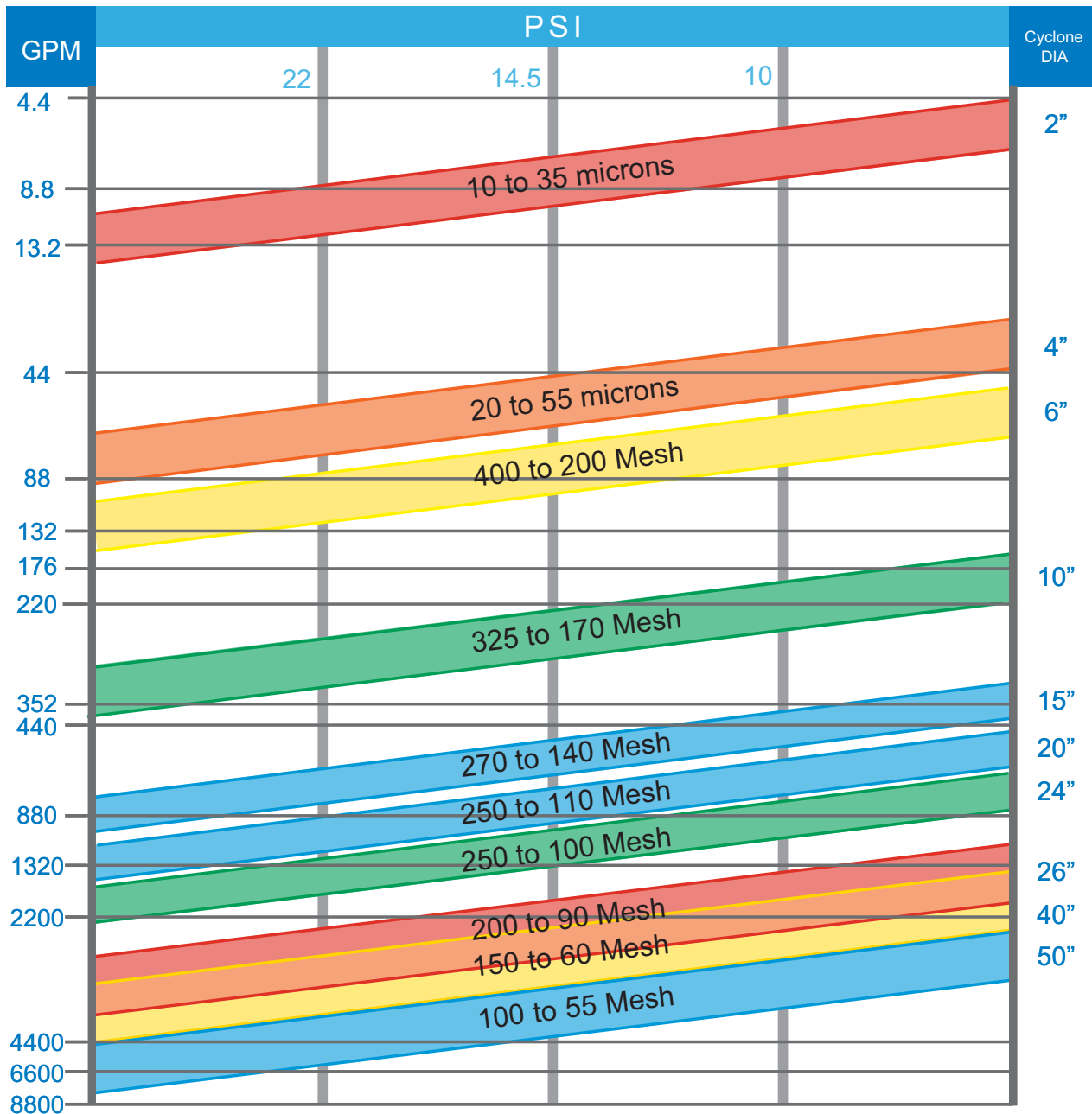
- Feed sizing should be maintained as constant and consistent as possible.
- Large changes of feed sizing, due to stockpile segregation, can reduce separating efficiency.
- Feed sump design should also include a sufficient cone angle to eliminate fine product slumping which can result in large amounts of material collapsing and entering the cyclone feed pump. This can cause feed rate, cut-point, product yield and product quality variations.
- Cyclone body and apex nozzle wear should be regularly monitored and worn components replaced as quickly as possible. Temporary repairs can be undertaken using a range of wear resistant compounds. Prolonged use of such “stop gap” measures can have negative performance effects.
- Improvement of separation accuracy can be achieved, in some cases, by a simple apex nozzle change.

Gold • Nickel • Diamonds • Coal • Paper • Sand •
Minerals • Effluent

Classifying Cyclones

Capacity Chart

Minco Tech Classifying Cyclones are designed to handle a vast range of applications.



All Mesh sizes are Tyler Mesh Scale

Cyclone feed, flow rate, pressure and cyclone dimensions are all directly related and, in theory, can be varied over a wide range. In practice, the degree of variation is limited to the cyclone feeding system design, speed of the pump, pressure adjustments and cyclone physical constraints. The above graph is intended as a guide only for preliminary selection. Please contact a CMI/Minco Tech representative for confirmation.

