



## PRODUCT BULLETIN

SEPOR, INC.  
718 N. FRIES AVE.  
P. O. BOX 578  
WILMINGTON, CA 90748  
PHONE: 310-830-6601  
FAX: 310-830-9336

Web Site: <http://www.sepor.com>

# Model CS 2000 Coal Spiral Concentrator

## GRAVITY CONCENTRATION USING SPIRALS

More and more coal fines are being produced with the spread of mechanized mining methods. In addition, there is a need to reclaim fine coal previously lost in dump material. Humphreys coal spirals, together with classifying hydrocyclones, provide a highly efficient, cost-effective means of recovering the fine coal.

The CS Spirals are available in single, double, and triple large-diameter starts, Humphreys coal spirals are an economical, easy-to-operate method of fine coal recovery. The wash-waterless spiral is an effective device for rejection of much of the refuse present, maximizing recovery of a low-ash coal. Typically the size range for effective spiral separation in coal is 10 mesh to 60 mesh, although some instances of high recoveries in size fractions down to 100 mesh are possible. These spiral concentrators efficiently separate the coal from the refuse (primarily composed of clays, sandstone, limestone, shale and slate). The high density refuse is forced inward, by the centrifugal force imparted by the moving water and spiral design, while the lighter density coal goes to the out side rim of the spiral concentrator. Splitter bars may be arranged to make cuts at three places along the spiral cross section, thereby giving up to three separate density separations, high, mid and low density materials.

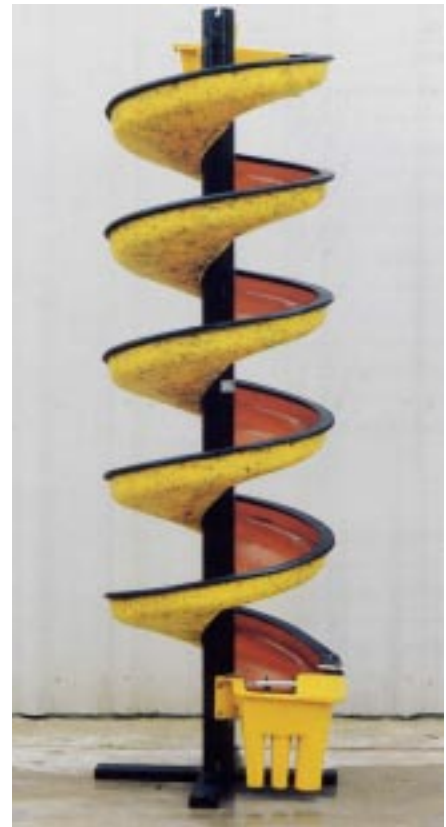
## SPIRAL CONCENTRATION

The CS 2000 range of new spiral concentrators, available in single, double or triple starts, are a most cost effective, easy-to-operate means of mid to fine coal recovery. Using the latest materials of construction, excellent wear resistance is achieved.

Spirals can be shipped as completely self contained modules requiring only that slurry be fed to the distributor and products removed from the collection launders. The washwaterless spiral is an effective device for rejection of much of the gangue present with the coal; although to maximize the recovery, spiral tailings may be retreated to reduce coal losses. A series of slurry distributors are available to suit your needs. These distributors are all equipped with replaceable lining in the potential high wear areas.



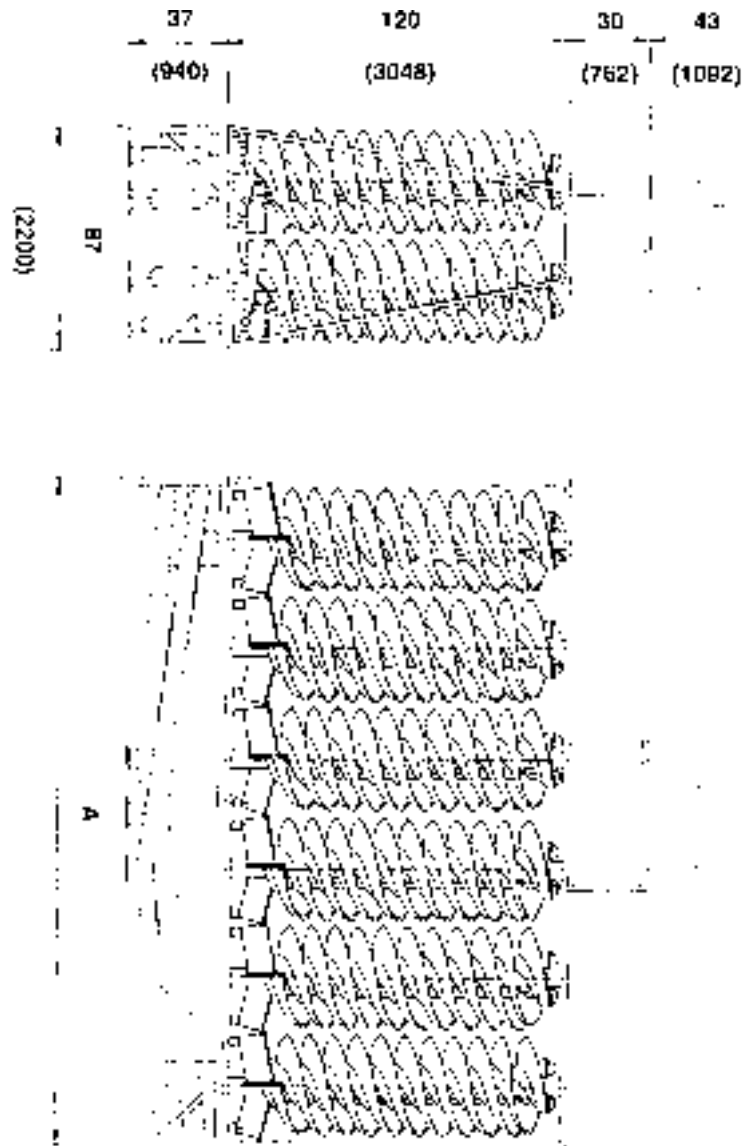
Photo of splitter bar on spiral. Illustrates that up to 3 cuts may be made on spiral, with highest density material inside, next to center, and lighter density material outward.



## PROCESS DESCRIPTION

De-sliming can be performed efficiently using hydrocyclones to deslime anywhere between 200-500 mesh (75 to 25 microns). An additional advantage to using cyclones ahead of the gravity concentration circuit is that cyclone underflow density can be adjusted to give good control to feed spirals. Urethane cyclones are lightweight though of rugged design to give long lasting wear life in these abrasive coal circuits.

# CS 2000 Spiral General Dimensions



**MODEL CS2000**

DIMENSIONS	NUMBER OF SPIRAL COLUMNS					
	2	4	6	8	10	12
<b>A</b> INCHES (MM)	45 (1150)	87 (2210)	128 (3250)	169 (4295)	210 (5334)	252 (6400)