A global leader in agitation agglomeration technology — the conversion of fine powders and dusts into spherical pellets.

Pin Mixer

The Mars Mineral Pin Mixer is a pin-type solids processor designed for applications requiring high energy input to materials for mixing or micro-pelletizing. It is a high-speed, conditioning and micro-pelletizing device that converts dust into small agglomerates through the action of a high-speed rotor shaft and pin assembly, and the addition of liquids such as water, binders, oil or surfactants.

Application

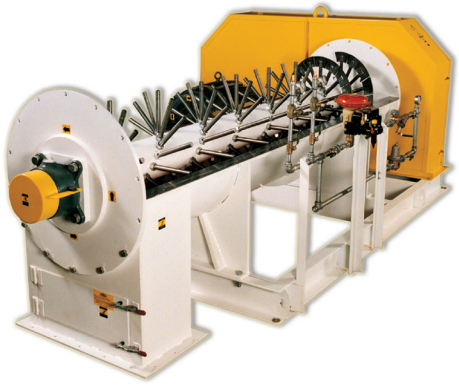
The Pin Mixer is ideally suited for micro-pelletizing, agglomerating, or conditioning powdered materials, such as carbon black, tire char, cement kiln dust, manure, pigments, coal dust, pesticides, electric furnace baghouse dust, limestone fines, graphite, coke, petroleum coke fines, bauxite and silica fume for further processing in a pelletizer.

Pin Mixer	Used as Pelletizer	Used as Mixer	End Product		Capacity
			Size	Shape	
	Yes	Yes	0.01 - 0.20 in. dia. 0.30 - 4.75 mm	Spherical to irregular	10 - 2200 ft^3/hr 0.28 - 62.3 m^3/hr

- Straightforward de-dusting/dust wetting
- Solids-liquid mixing
- Micro-pelletizing
- Pre-conditioning
- Chemical reaction

Detail of a typical Mars Mineral Pin Mixer chamber assembly. Pins are arranged in a staggered, overlapping double helical pattern to ensure uniform working of all particles.

The Mars Mineral Pin Mixer features a cylindrical, stationary shell with a length-to-diameter ratio between 4:1 and 5:1. Inside the shell is a replaceable rubber liner and a shaft with radially-extending rows of pins in a helix pattern. There is a close tolerance between the tips of the pins and the inside of the mixer shell.



Shaft rotational speed, and therefore tip speed, is high (several hundred RPM), which is higher than the speed of traditional paddle mixers, pug mills and Ampel conditioners.

The material enters at one end of the cylinder and is whipped by the pins as it moves from the inlet, through the shell and to the bottom outlet. As a fine spray of liquid is added at the entry section and distributed throughout the powder, fine mixing and micro-agglomeration will occur. The end result is a wetted, agglomerated and densified micro-pellet.

Pin Mixer Specifications

Model	Diameter	Length	Capacity (ft^3/hr)	Capacity (m^3/hr)	HP	Length	Width	Height	Weight (lb)
8D32L	8″	32″	10	0.28	20	6′-6″	3′-3″	2′-5″	1,300
12D54L	12″	54″	40	1.13	40	6′-7″	4′-5′	2′-5″	2,570
16D80L	16″	80″	100	2.83	50	9′-6″	4′-6″	3′-1″	3,500
20D90L	20″	90″	180	5.10	75	10′-2″	5′-3″	4′-6″	5,300
22D90L	22″	90″	225	6.37	100	10′-9″	5′-8″	4′-3″	6,900
26D100L	26″	100″	365	10.33	100	11′-6″	6′-8″	4′-6″	7,300
30D120L	30″	120″	550	15.57	150	13′-9″	7′-8″	4′-9″	7,900
40D160L	40″	160″	1300	36.81	250	16′-10″	8′-5″	6′-3″	18,500
48D190L	48″	190″	2200	62.30	350	19′-6″	9′-10″	6′-8″	26,000

Note: Capacity throughput based upon free flowing material. Specifications and dimensions are for general use only. Actual HP may change depending on material bulk density.

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