

APPLICATION BULLETIN

BACKGROUND/ CHALLENGE

A Texas-based aggregate producer and paving contractor needed to produce a high profit, high-quality asphalt hot mix while lowering their processing cost per ton. Fines are produced throughout the operation, minus 200 mesh fines must be removed to get the desired quality and meet the tight specifications of asphalt. If the fines are not removed then premature failure of the asphalt will occur as the fines create an adhesion barrier between the stone and the binder.

The quarry's processed material contained approximately 16-percent minus 200 mesh, with no more than 7 to 10 percent being acceptable to comply with any number of mix specifications. A dry method of fines removal, versus a traditional water wash method, was required due to updated asphalt plant technology and EPA regulations.



STURTEVANT® PERFORMANCE

Sturtevant offers a full range of air classifier models, from small-capacity units to those that effectively dedust at up to 1000-ton-per-hour production rates. After consulting with Sturtevant engineers regarding material characteristics and goals, it was determined that the operation required an air classifier that would remove fines from limestone screenings fed at rates ranging from 60- to 125-tons per hour. For this particular application, Sturtevant recommended a 16-ft Whirlwind® Air Classifier.

EQUIPMENT RECOMMENDATIONS

WHIRLWIND® AIR CLASSIFIER

MODEL	HP	AIR FLOW VENT (CFM)	FEED RATE (TPH)	APPROXIMATE WEIGHT		HEIGHT		DIAMETER		MIN. CLEARANCE	
				(LBS)	(KG)	(FT)	(MM)	(FT)	(MM)	(FT)	(MM)
3'	7.5 – 10	65 – 125	3	1,500	680	6' 7"	2007	3' 3"	991	3' 0"	914
4.5'	10 – 15	75 – 150	8	2,400	1089	8' 8"	2642	4' 10"	1473	3' 0"	914
6'	15 - 25	90 - 175	14	6,800	3084	10' 9"	3277	6' 4"	1930	3' 8"	1118
8'	20 - 30	150 - 300	25	9,500	4309	13' 0"	3962	8' 4"	2540	4' 8"	1422
10'	30 - 40	190 - 375	40	13,000	5897	15' 8"	4775	10' 4"	3150	4' 8"	1422
12'	40 - 50	275 - 550	56	18,500	8392	19' 1"	5817	12' 4"	3760	5' 6"	1676
14'	50 - 75	400- 800	77	21,500	9752	21' 1"	6426	14' 5"	4394	5' 6"	1676
16'	100 - 150	675 - 1,350	125	31,000	14061	24' 5"	7442	16' 5"	5004	6' 3"	1905
18'	250 - 300	1,000 - 2,000	200	50,000	22680	27' 7"	8407	18' 5"	5613	8' 9"	2667
20'	350 - 400	1,500 - 3,000	300	68,000	30844	30' 9"	9373	20' 5"	6223	9' 0"	2743

Measurements are for general reference only. Please consult dimensional drawings for exact measurements.

Larger sizes are available, for a complete list see the Whirlwind® Air Classifier Product Bulletin.

SUMMARY

The Whirlwind® Air Classifier is a versatile-performance unit that allows precise product definition and sizing. As asphalt hot mix specifications varied, the producer was able to dial in fines percentages while being able to adjust the price per ton accordingly. It was also found that due to efficient fines removal by the air classifier choking within the asphalt plant has been prevented. Since the classifier does not require cyclones, dedicated baghouses, airlocks, external fans or ductwork, the producer realized a lower capital investment, plus ongoing operating expense savings due to minimized energy consumption and maintenance needs.