

### APPLICATION BULLETIN

## BACKGROUND/ CHALLENGE

A supplier of wheat flour was seeking a cost-effective processing method for the high-capacity production of protein-rich wheat flour for specialty baking products and a starch-rich by-product.



## STURTEVANT® PERFORMANCE

The supplier consulted with Sturtevant, a company with more than 95 years of air classifying experience and over 130 years milling experience. Sturtevant operates a full-service testing facility to verify results and to aid in the specification of the correct machines. After thorough testing, Sturtevant recommended a two-stage particle reduction process with the use of its SuperFine Air Classifier and its FCM air classifying mill for the specific application. With the starting wheat flour containing only 9- to 10-percent protein at 75- to 150- microns (100-200 mesh), the FCM reduced the particle size to a 30-50 micron powder. Then, the SuperFine Air Classifier fractionated the flour at 18-30 microns to make a 15-20% protein-rich fine product and a starch-rich coarse by-product.

## EQUIPMENT RECOMMENDATIONS

### SUPERFINE AIR CLASSIFIER

CLASSIFIER MODEL	ROTOR DRIVE		TYPICAL AIR FLOW		FEED RATE	
	(KW)	(HP)	(m <sup>3</sup> /h)	(CFM)	(KG)	(LBS)
36"	11	15	5,100	3,000	454 - 4536	1,000 - 10,000
72"	30	40	15,300	9,000	4536 - 13608	10,000 - 30,000

### FCM AIR CLASSIFYING MILL

MILL SIZE	MILL CHAMBER		ROTOR DRIVE		CLASSIFIER DRIVE		ROTOR SPEED	TYPICAL AIRFLOW	
	(MM)	(IN)	(KW)	(HP)	(KW)	(HP)	(RPM)	(m <sup>3</sup> /h)	(CFM)
FCM 100	100	4"	1.1	1.5	0.37	0.5	10000-24000	150	80
FCM 200	200	8"	2.2	3.0	0.75	1.0	6000-12500	400	250
FCM 350	350	14"	15	20	2.2	3.0	3000-8500	1400	800
FCM 500	500	20"	30	40	5.5	7.5	2500-5000	2600	1500
FCM 650	650	25"	45	60	7.5	11	2000-4200	4500	2700
FCM 800	800	31"	75	100	11	15	1500-3200	6500	3800
FCM 1000	1000	39"	132	175	15	20	1000-2600	12000	7000
FCM 1400	1400	55"	250	325	30	40	1000-1850	22000	13000

## SUMMARY

Superfine Air Classifiers have been used for decades to shift the protein value of grains including peas, wheat, corn, soy, barley and oats. Sturtevant FCM air classifying mills can be teamed with a Superfine Air Classifier to obtain fractions precisely selected for particle size, starch protein level, viscosity, or absorption.

In this particular application, the SuperFine Air Classifier and the FCM Air Classifying Mill provided the capacity and a cost-efficient method for producing a high quality, protein-rich wheat flour for the use in specialty baking products, aquaculture, pet food, or fish food markets.