3. Machines
3.2 Classification
Hosokawa/Alpine Turboplex Classifier ATP
Centrifugal Force Classifier

Summary

The Turboplex classifier is the classic all-rounder, offers the widest range of applications, and is available as a single-wheel or multi-wheel classifier. The design is tailored to suit the application.

Principle of Operation

After entering the machine, the classifying air flows through the classifying wheel in centripetal direction, extracts the fines and conveys them to the fines discharge. The coarse material rejected by the classifying wheel exits the machine through the coarse discharge. The air routing shown in the schematic is simplified and doesn't show that before the coarse material exits the classifier, it is rinsed again intensively by air to remove the remaining fines. This results in an extremely clean coarse fraction.

The product is fed either by gravity from the side via a rotary valve or entrained in the classifying air. The product fineness is controlled as a function of the classifying wheel speed using a frequency converter.

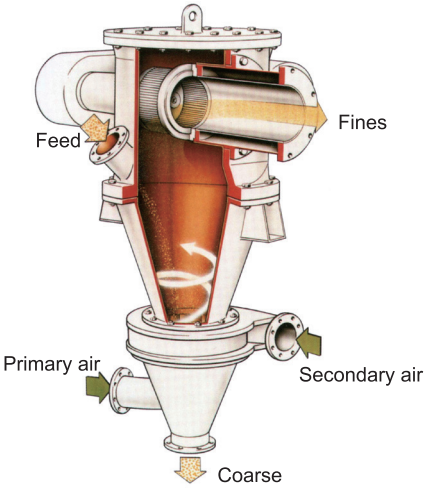

Fig.1 Turboplex ATP

Wear Protection

The materials used and the type of wear protection is customized for the specific application.

- Housing:
  PU or ceramic wear protection
- Classifying wheels:
  Al_2O_3 in monobloc ceramic for machine sizes ATP 50, 100, 140, 200, 315
- SiC for machine sizes 100 and 200
- Steel wheel with tungsten carbide coating

Designs

- ATP singe- / multi-wheel classifier
- Mild steel / stainless steel
- Pressureless / pressure-shock-proof to 10 bar (g)
- Wear protection
- Enlarged fines discharge
- Classifier head can be hinged open
- Pneumatic feed with main classifying air optional (in-line mode)

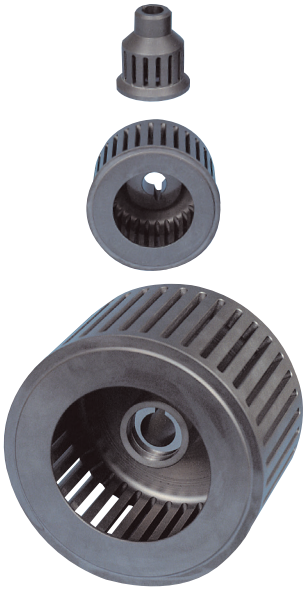

Fig.2 Classifying wheel made with SiC

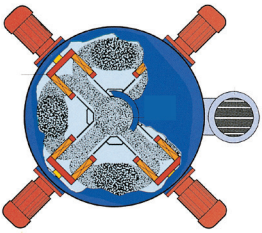

Fig.3 Layout of multi wheel

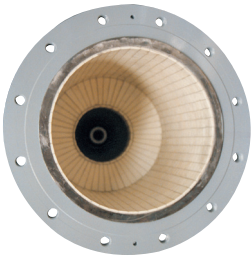

Fig.4 Wear protected enlarged fines discharge

Table 1 Specifications (Single wheel)

Model	ATP	100	200	315	400
Scale up factor	(-)	0.25	1	2.5	4
Motor	(kW)	4	5.5	11	11
Wheel speed	(rpm)	11000	6000	4000	3150
Air volume	(m^3/h)	300	1200	3000	4800
Cut point d_{97}	(μm)	4~100	5~120	6~150	7~150
Product capacity d_{97} = 8μm	(*t* /h)	0.035	0.14	0.35	0.56
20μm	(*t* /h)	0.07	0.28	0.70	1.12
45μm	(*t* /h)	0.1	0.2	0.4	1.6

Model	ATP	500	630	750	1000
Scale up factor	(-)	6.25	10	14	25
Motor	(kW)	22	30	37	45
Wheel speed	(rpm)	2400	2000	1600	1200
Air volume	(m^3/h)	7500	12000	17000	30000
Cut point d_{97}	(μm)	8~150	9~200	10~200	12~200
Product capacity d_{97} = 8μm	(*t* /h)	0.80	-	-	-
20μm	(*t* /h)	1.75	2.8	3.9	6.5
45μm	(*t* /h)	2.5	4.0	5.6	9.5