

Alfa Laval Stone catcher

Separating stones from steeped maize

Introduction

The stone catcher separates stones and other heavy impurities from steeped corn.

Application

The stone catcher is installed in the transport pipe in which the steeped corn is transported hydraulically from the steep house to the wet milling section.

Benefits

- Absence of moving parts results in minimum wear and minimum downtime
- Easy operation
- Low maintenance cost

Working principle

Transport water with steeped corn and impurities is fed tangentially into the stone catcher's feed chamber with sufficient velocity to create a vortex action. This forces the stream into a spiral, and as the rapidly rotating flow spins about the axis of the cone, the lighter fraction (water and steeped corn kernels) is forced to spiral inwards and out through the overflow outlet into the overflow housing. The heavier fraction (stones and other heavy impurities) is flung outwards against the wall of the chamber by the centrifugal force within the vortex and exits through the discharge cone (in the bottom) into a discharge collector.

Wash water is added to the collector, through a separate connection, creating an upflow that prevents settling of starch and of steeped corn kernels. Stones are intermittently drained from the discharge collector by opening a sliding valve at the bottom.

Through an inspection glass the operator can observe the actual filling level in the discharge collector. The discharge is equipped with a flush water connection. If there is a risk of bridging during emptying of the grit pot, flush water can be used temporarily.



Design

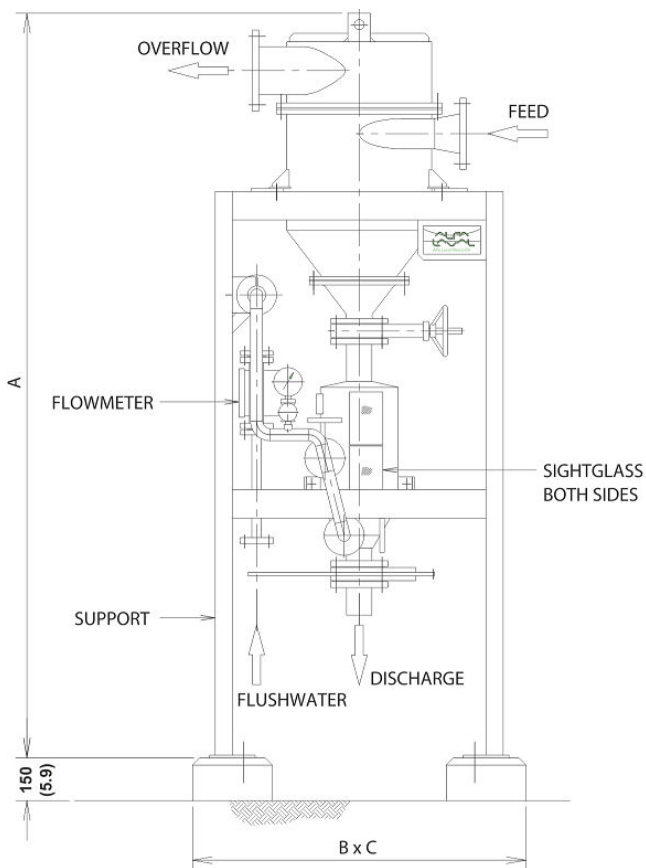
The stone catcher comprises a feed chamber with flanged feed connection, an overflow housing with flanged overflow connection, a discharge cone, a discharge collector with flanged connections for process water and for flush water (optional), and a sliding valve.

All parts including the supporting frame are made of stainless steel except for the discharge cone which is made of wear resistant steel with rubber lining.

Size	Approximate dimensions mm (inch)			Net weight of stone catcher Kg	Weight of support Kg	Total weight in operation Kg	Wash water m ³ /h	Average grind rate ¹ (MTPD)
	A	B	C					
STC 200	2250 (88.6)	1200 (47.2)	1000 (39.4)	155	100	305	1–2	50
STC 300	2250 (88.6)	1200 (47.2)	1000 (39.4)	170	100	335	1–3	125
STC 400	2475 (97.4)	1200 (47.2)	1200 (47.2)	190	125	430	2–4	200
STC 500	2650 (104.3)	1200 (47.2)	1200 (47.2)	215	125	520	3–4	350
STC 600	2850 (112.2)	1200 (47.2)	1200 (47.2)	245	145	680	5–6	550
STC 700	3050 (120.1)	1200 (47.2)	1200 (47.2)	285	150	890	5–6	700
STC 800	3175 (125)	1300 (51.2)	1300 (51.2)	375	155	1150	8–10	1000

¹ Based on a transport water/steeped corn ratio of 4–6 kg/kg. At pressure drop over cyclone of approximately 0.4 to 0.5 bar.

Dimensional drawing



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