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FILM RECYCLING PROCESSES WITH ALPINE GRANULATORS



HOSOKAWA
ALPINE Aktiengesellschaft & Co. OHG

Hosokawa Alpine is a member of the Hosokawa Micron Group, responding to global needs through emphasis on materials science and engineering. The Group is an international provider of equipment and technology for powder and particle processing, plastics processing and confectionery products. The Group maintains facilities for research, engineering, manufacturing and service in each of the world's major industrial markets.

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HOSOKAWA ALPINE

PROCESS TECHNOLOGIES FOR TOMORROWSM

FILM RECYCLING PROCESSES

BOPP, BOPET, BOPA FILM RECYCLING WITH ALPINE TECHNOLOGY



Reliable and economic recycling of film - that is what ALPINE granulators stand for, whether edge trims, film webs, reels or film heaps.

Whether thin film or thick film, with our extensive practical experience in every detail, we will find the perfect solution for your individual requirements. Making use of Alpine's know-how in process technology and design engineering means that everything from system planning to the

overall responsibility is handled by one source. We not only supply the granulator for reducing the film, but on request, a complete system including film feeding devices, film flake silos and dedusting systems.

Our Rotoplex granulators with cross-scissors-cut rotor are specially designed to stand up to the extreme demands posed by film cutting. As the cornerstone of a system, these granulators guarantee high efficiency and operating reliability.

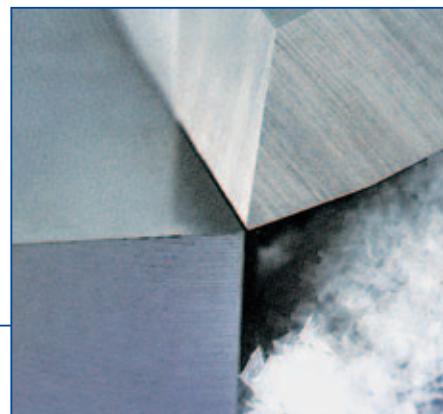


FILM INTAKE DEVICE

THE GRANULATOR

When processing film, the highest demands with regard to performance and mechanical strength are placed on the granulator, because in this case, an even greater cutting power and stress are exerted than, for example, when processing compact plastic lumps. And yet use of a granulator is not only governed by technical and application-related aspects; in practice, the operator considers equally the commercial and economic factors. Here, too, Alpine granulators open up new possibilities of optimising the cost-effectiveness calculation. The excellent cost-effectiveness of Alpine granulators results from a

considerably improved degree of cutting ability; they are quite simply more efficient. They run smoothly, and thus more quietly, and are more economical with regard to energy consumption. Which all adds up to improved performance and better operating reliability.



APPLICATION TECHNOLOGY

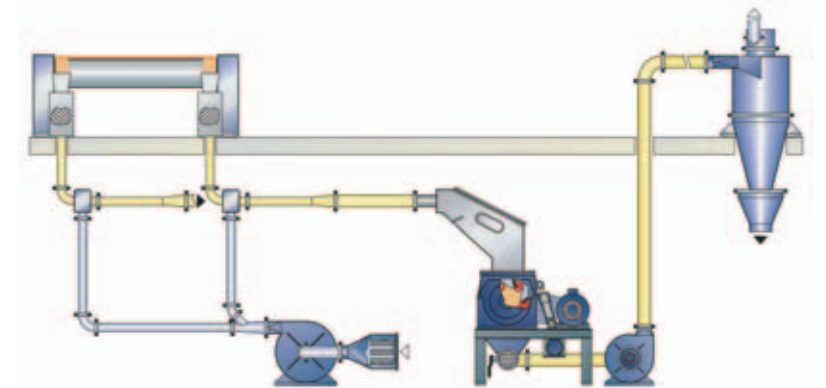
Because consideration of the individual requirements of every project plays an essential role in the ultimate success of a system, we take great pains to develop realistic, practice-oriented solutions for each process in our testing centre.



THE PROCESS

EDGE TRIM SYSTEM

The schematic shows the basic design of an edge trim conveying and grinding system. The special Alpine design of the main components venturi, air separator for grinder and cyclone in combination with our high engineering standard ensures absolute reliability of your edge trim waste management.

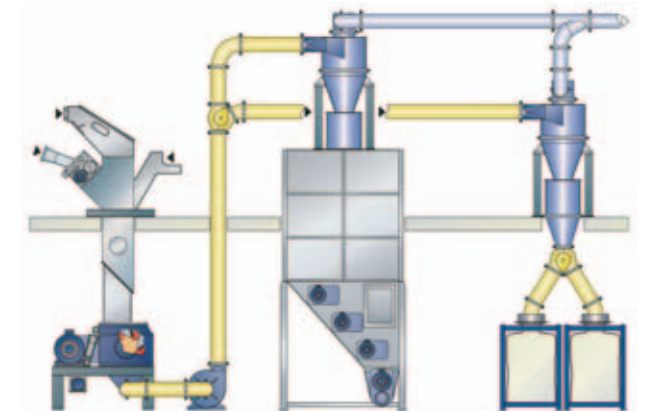


OFF-LINE SYSTEM

The drawing shows an economical, multi-purpose and central off-line film grinding station that enables you to grind all your film waste.

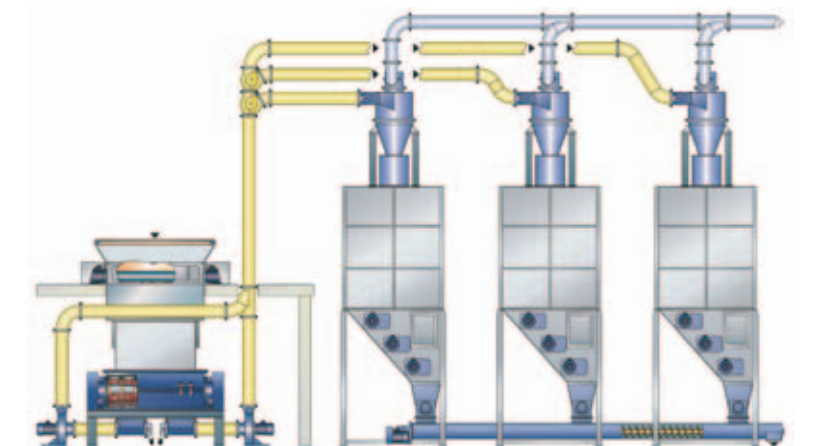
Features

- Air separator for edge trims.
- Nip roll system for webs off the reel or for cast film.
- Manual feed hopper for loose waste.



IN-LINE SYSTEM

The process diagram shows a typical example of an in-line granulator for BOPP, placed in a pit directly at the TDO outlet (Transversal Direction Orientation). This is a classic application for the legendary big Rotoplex granulators which are available for throughputs up to 10 t/h.



FILM RECYCLING PROCESSES

TURNKEY FILM RECLAIM SYSTEMS



FILM INTAKE DEVICE

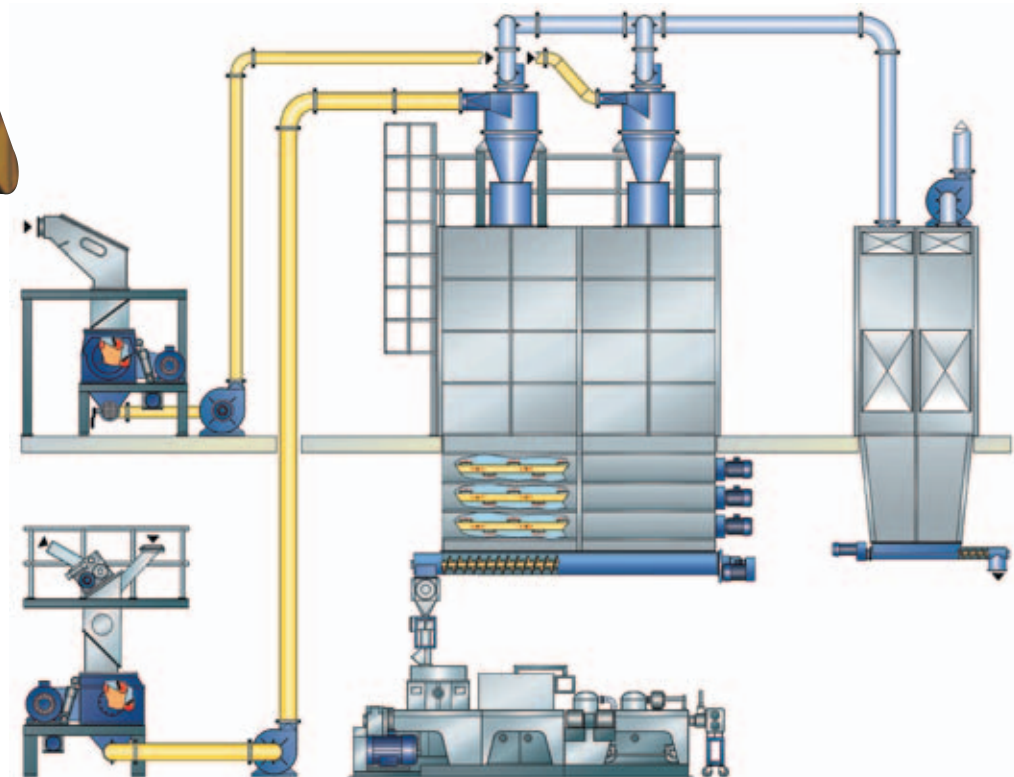
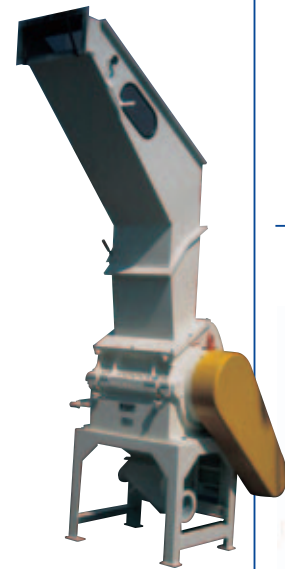
- Working widths up to approx. 2500 mm.
- Intake speeds up to 500 m/min.
- Roller arrangement for horizontal or vertical feed.
- Fixed and floating roller with milled, highly polished hard-chromed surface.
- Roller with adjustable and lockable wipers.
- The floating roller can be pneumatically advanced and retracted.
- Alternative roller drives:
 - Three-phase geared motor with frequency inverter for automatic speed synchronisation.
 - AC geared motor.

SUPPLY CHUTE

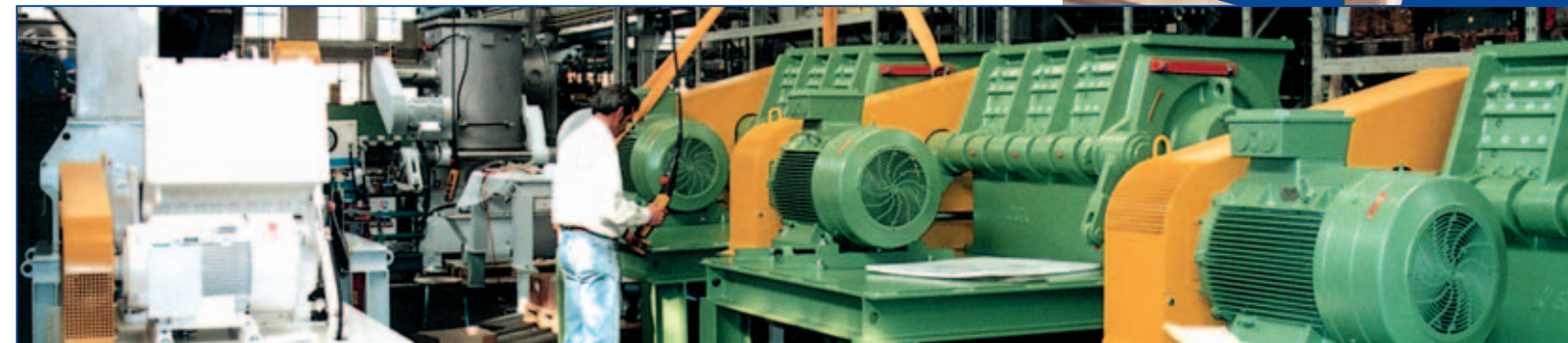
- With contact-activated safety limit switches.
- For film up to approx. 10000 mm width.



ALPINE ROTOPLEX®
GRANULATOR 90/300 Ro
ROTOR WIDTH 3000 mm
ROTOR DIAMETER 900 mm

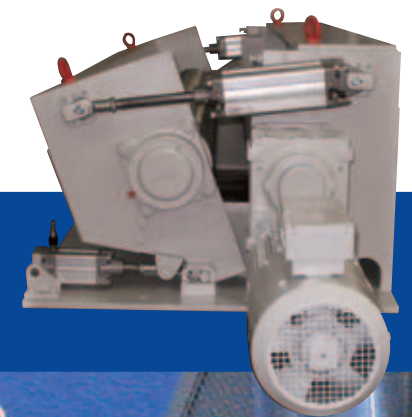


ALPINE, GERMANY
ASSEMBLY DEPARTMENT:
ROTOPLEX READY FOR SHIPMENT



FILM RECLAIM SYSTEM

Complete system with waste film and edge trim granulators, storage silos and regranulation extruder. Turnkey system engineered by Alpine.



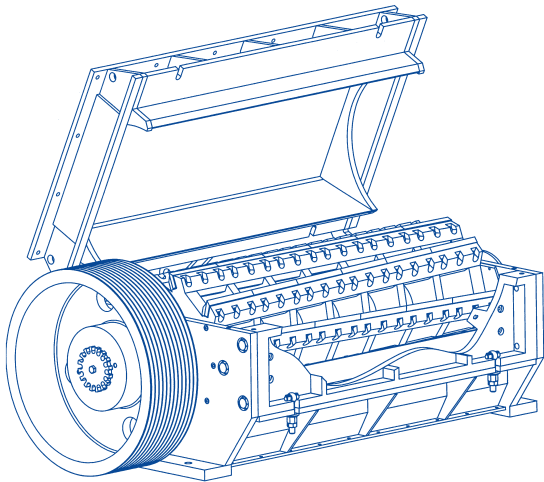


ALPINE CROSS-SCISSOR-CUT ROTOR
(DB PATENT)

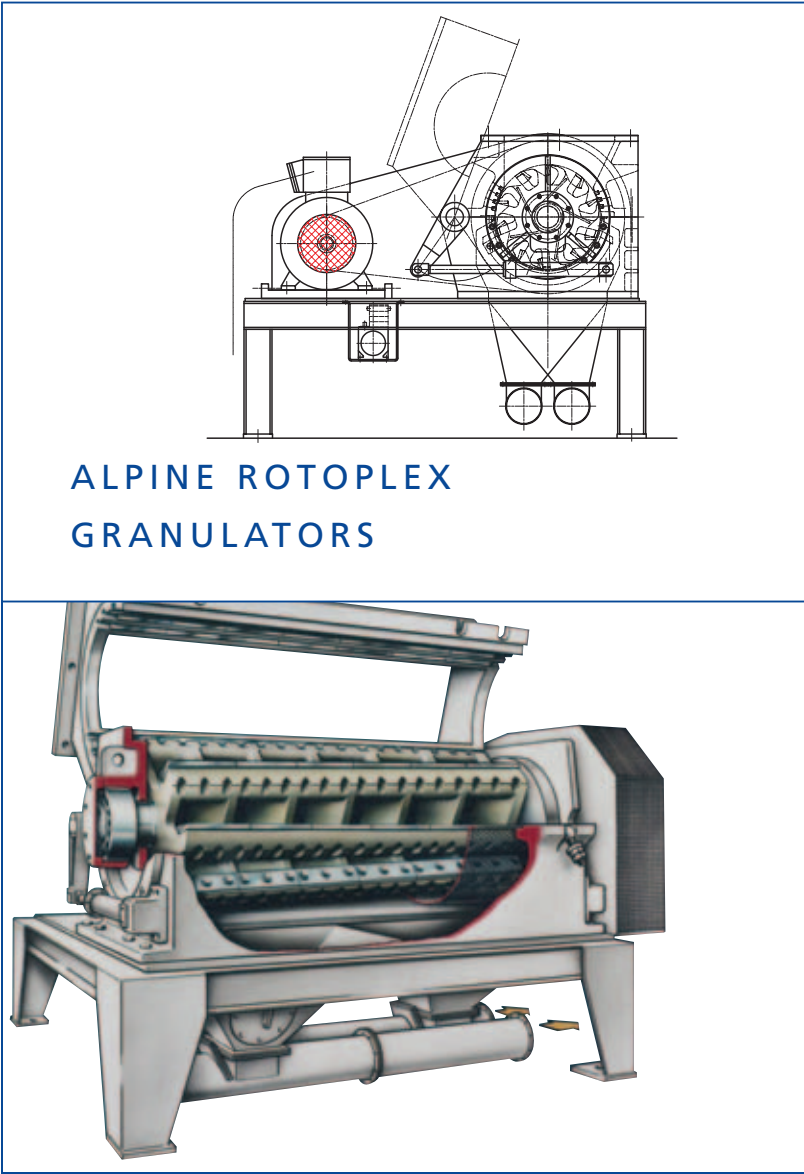
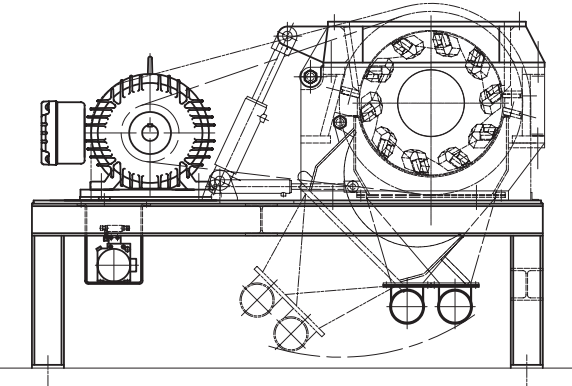
Hosokawa Alpine is worldwide the only supplier of a rotor system with knives which are inclined alternately in opposite directions. The result is a superior cutting action even for ultra-thin film, preventing the disadvantages of other rotor designs.

EXTREMELY HIGH CUTTING CAPACITIES

The special rotor knife arrangement of Alpine granulators allows a large number of knives in the housing. This is the basis for the high throughputs of Alpine film granulators, built for capacities up to 10 t/h.



ALPINE COMPACT-
LINE GRANULATORS



ROTOR END GUARD

Problems with film jamming between the rotor face and the side shields? Not with Alpine film granulators! Our special solution ensures trouble-free operation.

BEARING ARRANGEMENT

High demands require special solutions. A special feature of Alpine film granulators is the intelligent bearing arrangement, combining the advantages of integral bearings with those of external bearings.

MODEL RANGE



The scale-up factor refers to model 28/40 Ro

ROTOPLEX	Type	28/40	28/60	28/80	36/60	40/63	50/63	50/80	63/80
Drive, standard	[kW]	11	18.5	22	30	37	55	75	90
Scale-up factor	F=approx.	1	1.6	2	1.8	2.2	3.2	4.2	5
Cross-scissor-cut rotor		*	*	°	*	*	*	*	*
Diameter	[mm]	280	280	280	360	400	500	500	630
Cutting width	[mm]	400	600	800	600	630	630	840	840
Knife rows	number	3	3	3	4	4	5	5	6
Stator knife rows	number	2	2	2	2	3	4	4	4

ROTOPLEX	Type	63/100	63/125	80/125	80/160	80/190	90/190	90/224	90/300
Drive, standard	[kW]	110	132	132	160	200	250	400	500
Scale-up factor	F=approx.	6	8	10	12	16	19	23	30
Cross-scissor-cut rotor		*	*	*	*	*	*	*	*
Diameter	[mm]	630	630	800	800	800	900	900	900
Cutting width	[mm]	1050	1260	1260	1600	1920	1920	2240	2880
Knife rows	number	6	6	8	8	8	10	10	10
Stator knife rows	number	5	5	5	6	6	7	8	8

COMPACT-LINE	Type	45/71	45/100	45/140	60/100	60/140	60/250	80/140
Drive, standard	[kW]	45	75	75	90	110	132	160
Scale-up factor	F=approx.	2.5	3.5	4.5	5	6.5	8.5	9
Cross-scissor-cut rotor		*	*	*	*	*	*	*
Diameter	[mm]	450	450	450	600	600	600	800
Cutting width	[mm]	680	1020	1360	1020	1360	2500	1360
Knife rows	number	4	4	4	6	6	6	8
Stator knife rows	number	2 (3)	2 (3)	2	2 (3)	2 (3)	3	3

COMPACT-LINE	Type	80/200	90/200	90/240	90/270
Drive, standard	[kW]	200	250	315	400
Scale-up factor	F=approx.	11	14	17	19
Cross-scissor-cut rotor		*	*	*	*
Diameter	[mm]	800	900	900	900
Cutting width	[mm]	2040	2040	2380	2720
Knife rows	number	8	10	10	10
Stator knife rows	number	3	3	3	3

*equipped with Alpine’s patented Cross-scissor-cut rotor