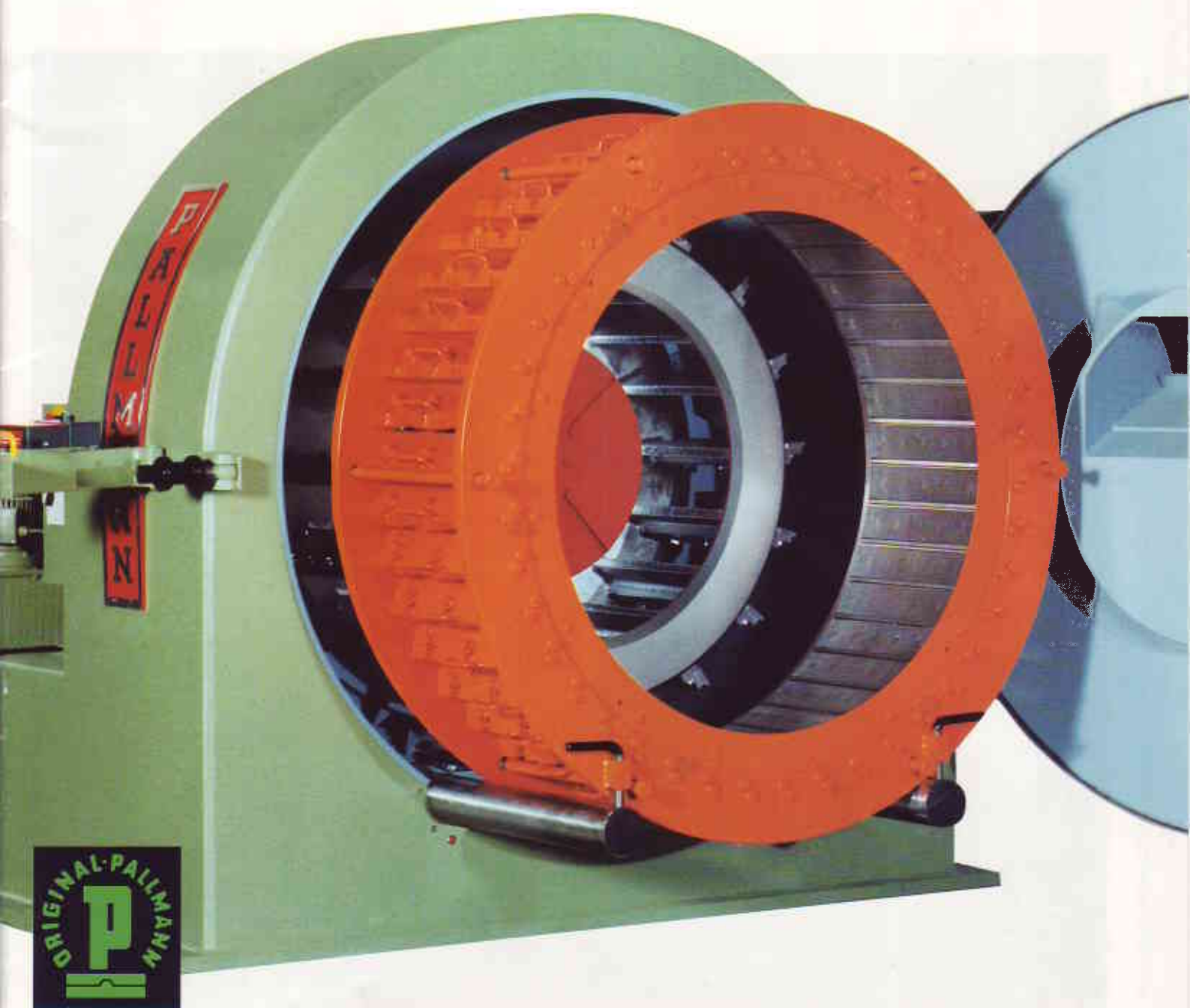


PALLMANN

Knifering-Flaker

The High Performance Machine for
production of quality flakes

Series PZKR
– Patented –



PALLMANN Knifering-Flaker

Chip-Flaking

Economical, labour saving, efficient

The future course of modern Particle Board Plant operations points toward more flaking of chips. Chips can be fully automatically conveyed, stored, metered, mixed and flaked.

This trend allows the use of low price wood assortments for conversion into high quality flat flakes.

Manpower demands are small. Large throughput capacities and a simple, fully automatic material flow result in low labour costs.

Expertly prepared chips provide the proper furnish for particleboard of high quality which will meet all requirements of the industry.



100 % Utilization of wood

Target of the Particleboard Industry

Wood is becoming scarce and expensive. Full utilization is a must. It is our job, to help you with machines which are built especially for the upgrading of scrap wood assortments. Our efforts are constant and our research is intensive in order to live up to our goal of continuous development and improvement of these machines.

Valuable knowledge, accumulated in our modern laboratory during series of industrial scale tests is being employed to your advantage in the design of our machines.

Practical operation experience helps to develop machines for reliable production performance.



PALLMANN Knifering-Flaker

5000 Pallmann Flakers

Successful all over the world

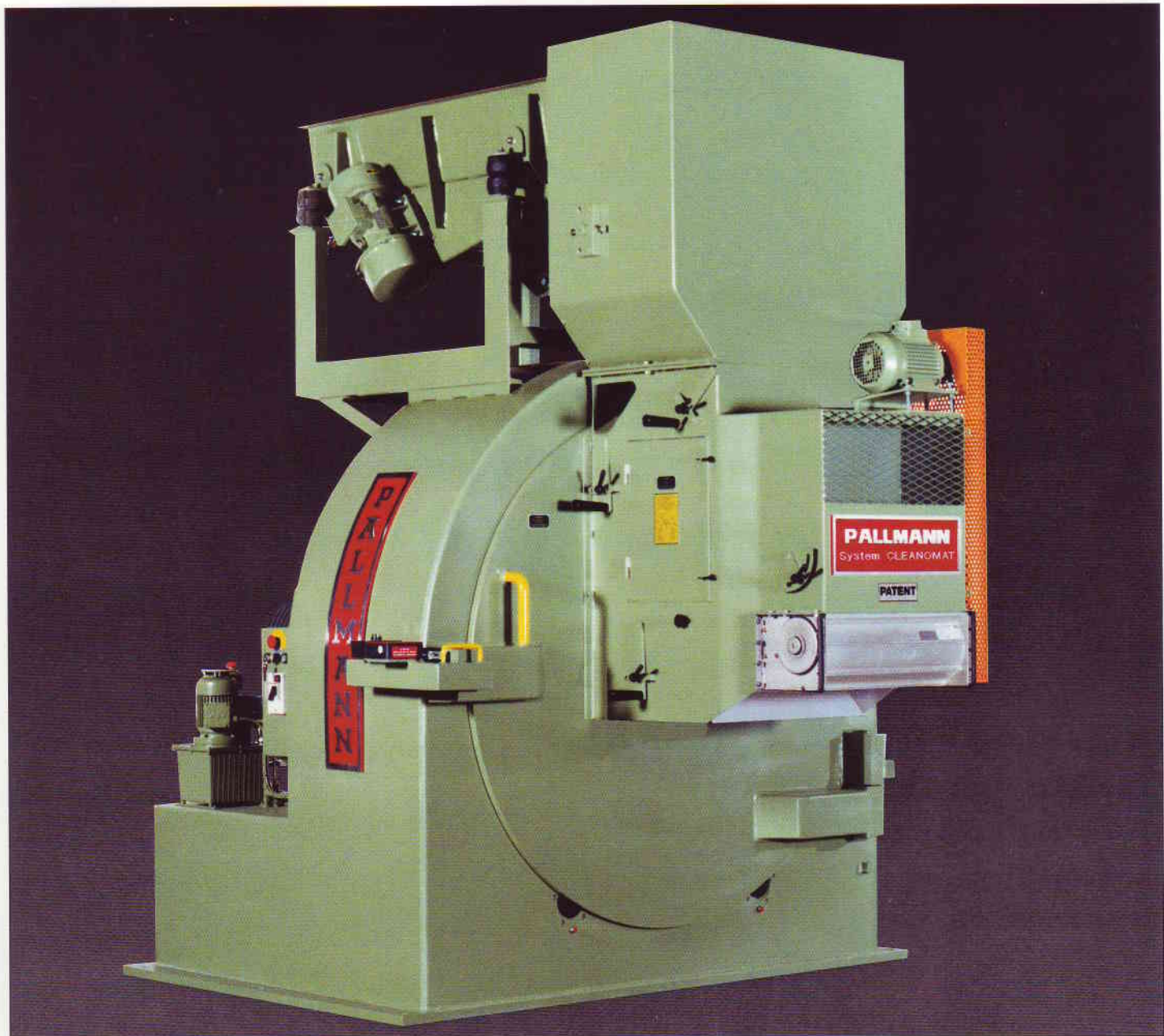
The first Knifering Flakers ever were built by us in Zweibrücken during the year of 1950. The principle of counter rotational flaking within the knifering was patented for us. This discovery started a new area of flake preparation. Steady technical development in cooperation with our customers resulted in designs which are precisely attuned to the requirements of the particleboard industry.

The world's largest and modern particleboard plants work today with PALLMANN Flakers and are among our satisfied customers. Some companies installed by and by up to 18 PALLMANN Flakers.

PALLMANN Flakers are versatile and can be adjusted to suit individual flaking requirements. The cutting angle and the

knife angle have been selected to obtain maximum knife life with good, uniform flake quality.

The favourable form of the knife carriers and rotation of the knifering assure proper flake discharge. Even extremely moist feed stock will not cause clogging. Adjustable and exchangeable pressure lips help to produce excellent flake qualities in spite of long and continuous operation. An additional improvement is the adjustability of the turbo impeller wear plates. Regrinding can be done on a simple oscillating surface grinder.



Operating Method

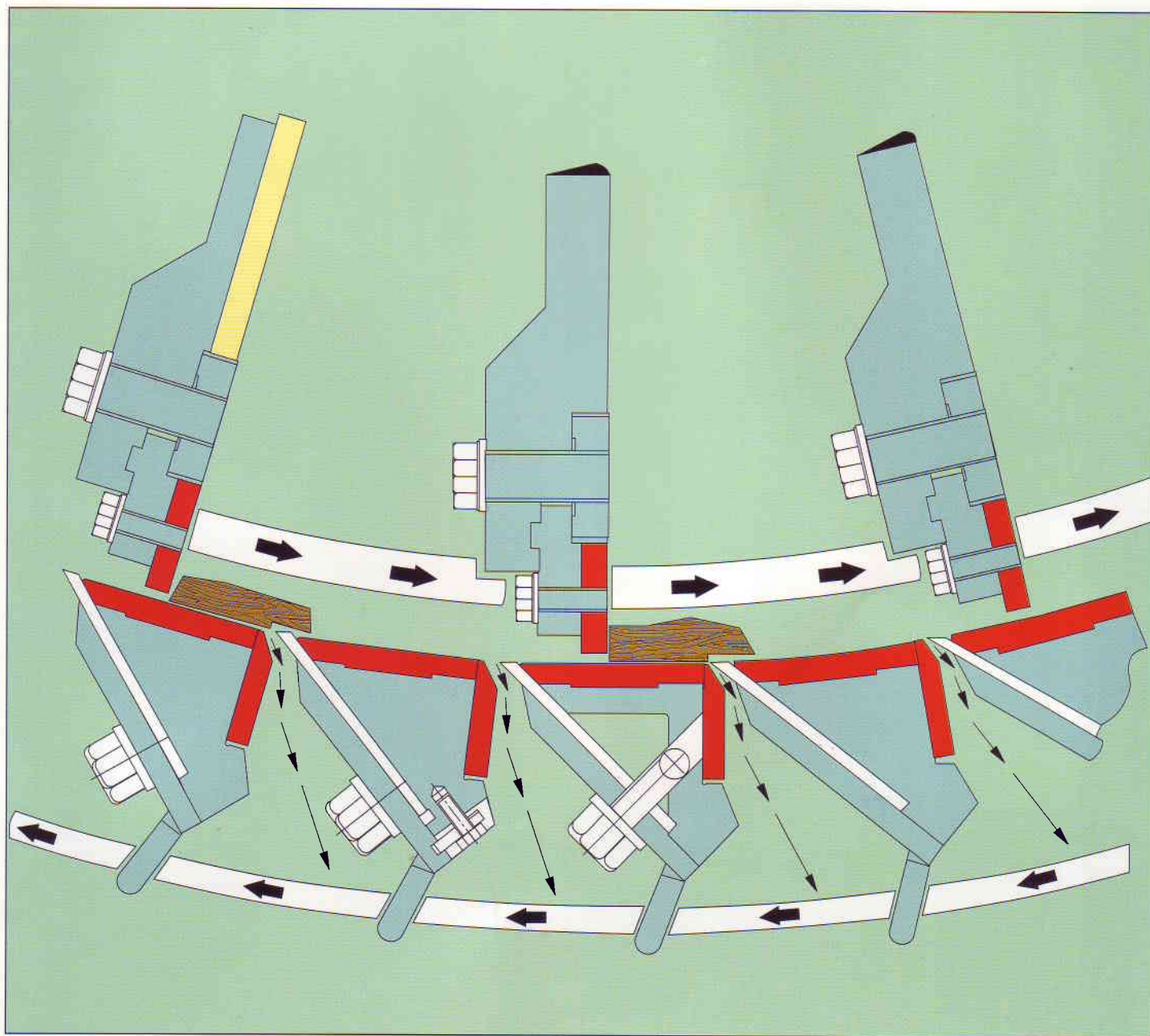
Feed material enters at a controlled rate through an infeed chute designed as a gravity separator. A material distributor is spreading the chips uniformly into the flaking chamber. The fast rotating turbo impeller is aligning the material and guides it to the knives inserted in the knifering. This results in flakes being sliced off in thickness according to the adjusted knife setting. The flakes escape through the slots between knives and pressure lips and are then discharged vertically to below of the machine housing.

A problem free chain drive, powered by a gearhead motor, counter-rotates the knifering against the impeller rotation. This proven counter-rotating operating principle of PALLMANN machines assures uniform use of all knives, in effect, high cutting performance with good knife utilization and uniform wear.

Furthermore, the counterrotation of the knifering ensures proper flake discharge, even at extremely high moisture contents. Flake discharge channels stay open and no material will accumulate on the outside of the knifering.

Electric power can be saved by locking the knifering into a stationary position when feed materials with low moisture content are available.

PALLMANN Knifering Flakers offer the possibility of reconditioning worn inner faces of the knifering by the use of a specially developed knifering grinder without removing the knifering from the machine taking advantage of the rotating knifering drive.



PALLMANN Knifering-Flaker

Construction

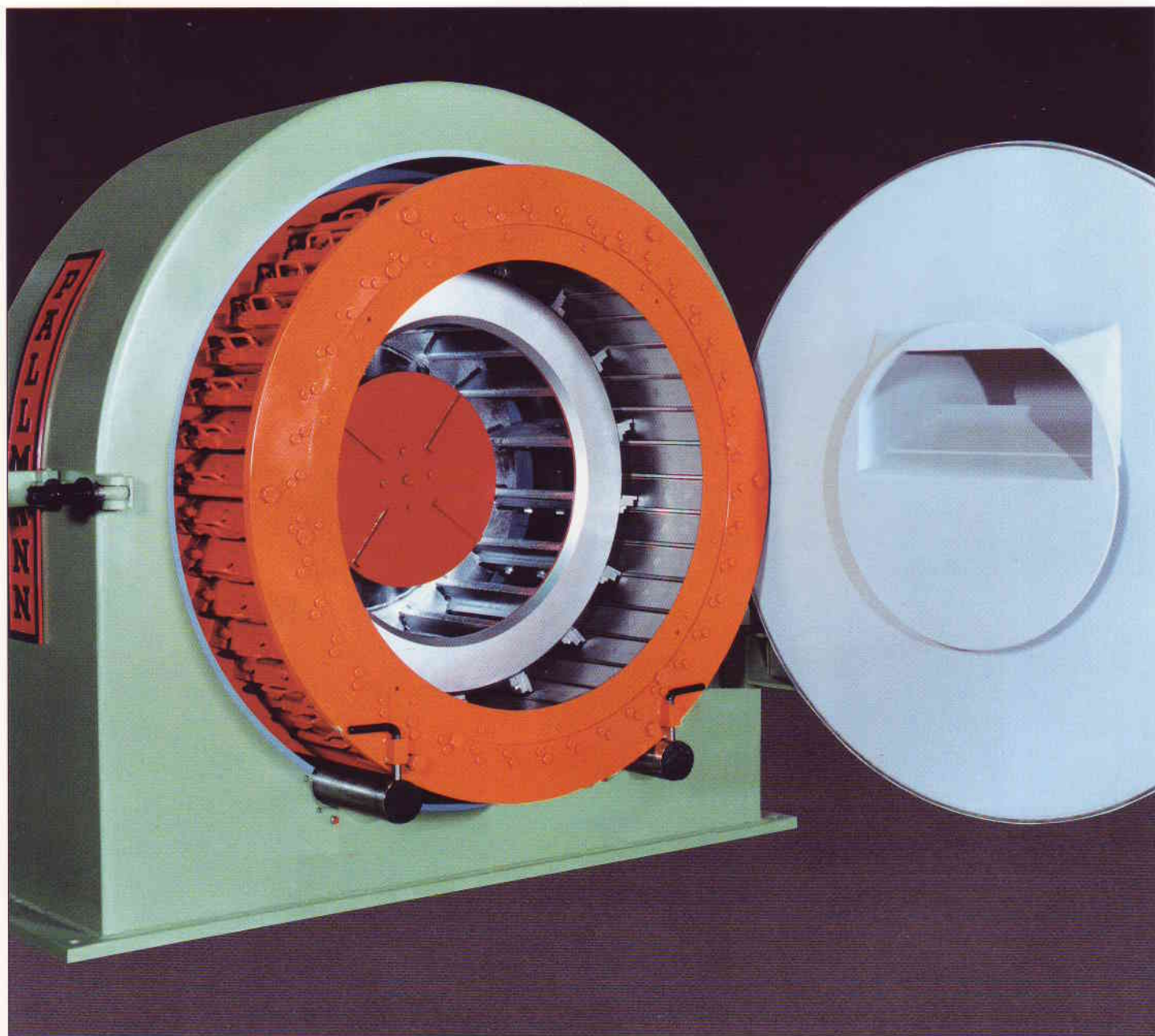
Simple, sturdy, proven design

It is one of our principles to keep our designs simple, however, build extremely sturdy and reliable, because PALLMANN Flakers have to withstand rough three-shift-operation at any location in the world. Our machines are therefore equipped with especially strong shafts, overdimensioned bearings and thick-walled, heavy housings.

The results are smooth running conditions and long machine life. All components exposed to and subject to wear are made of highly wear resistant materials. They are easy to exchange, respectively to readjust.

The turbo impeller is driven by a strong V-belt drive which serves also as a shock absorbing link between motor and flaker.

To reduce downtime for knife changing we supply a hydraulically operated disc brake which will stop the turbo impeller and the knifering within seconds. As an option we offer a special knifering cleaning system.



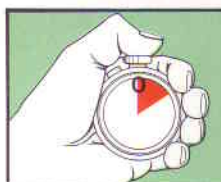
Quick Knifering Change

Fascinatingly simple, by push button

A high operating efficiency is achieved with the PALLMANN Flaker PZKR due to short downtime for knife changes.

A maintenance man opens the flaker door after knifering and turbo impeller came to a standstill. The exchange jig is now moved into working position and the knifering clamps are released. Activating a push button will move the knifering hydraulically out of the machine housing for transfer to the waiting knifering transportation carriage. A reconditioned knifering equipped with sharp knives is now placed onto the exchange jig. Reactivating the push button will pull the knifering hydraulically back into the machine housing and onto the knifering support disc. The flaker will be operational again after the knifering has been clamped on the carrier disc and the housing door has been locked.

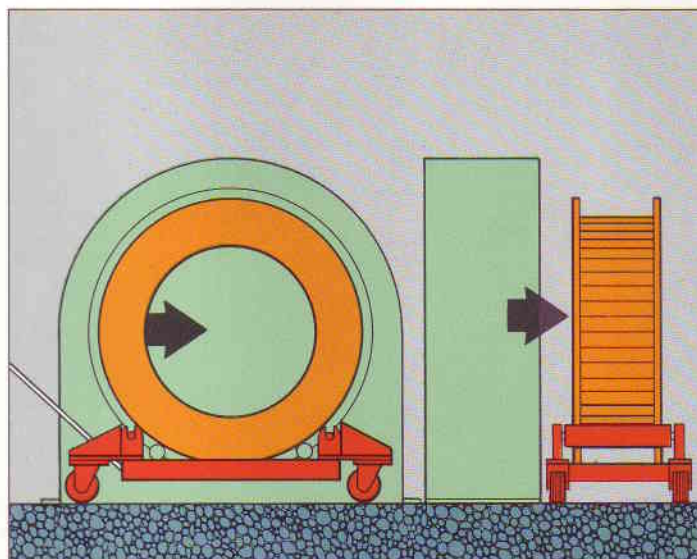
To suit local conditions the knifering transportation carriage may be replaced by another lifting device such as a hoist on a mono-rail or a fork lift truck.



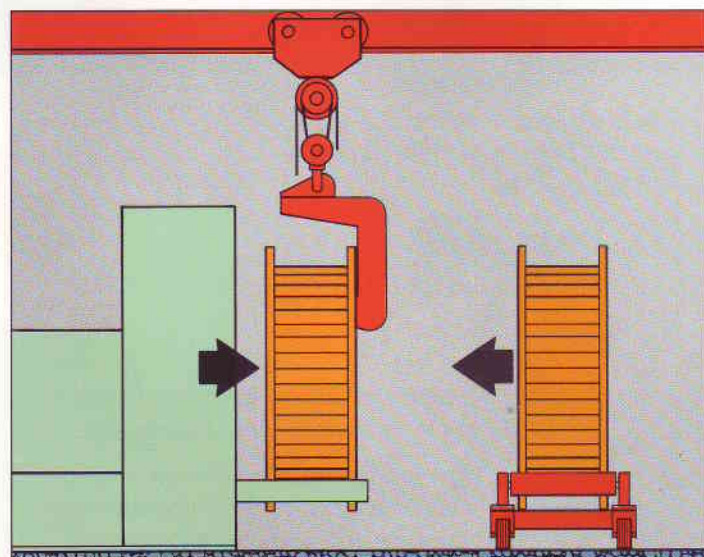
Downtime for knifering change is 5 to 20 minutes depending on machine size



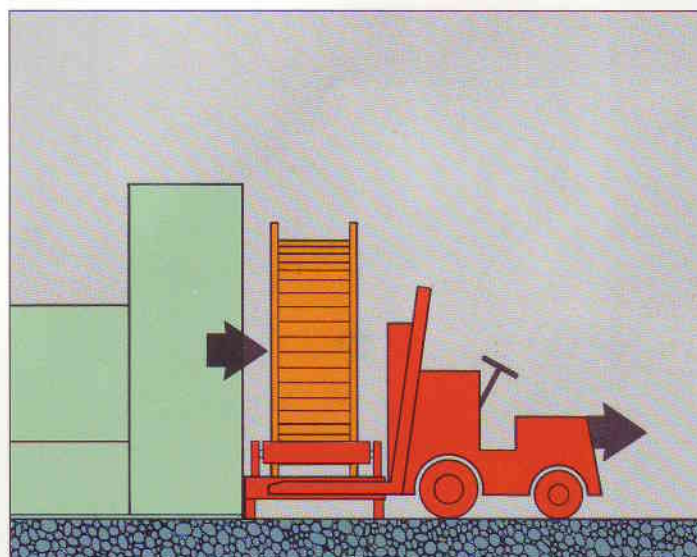
Knifering transport by carriage



Knifering change with carriage



Knifering change with hoist and exchange jig



Knifering change with fork lift truck

PALLMANN Knifering-Flaker

Quick change of knife packages with tilt studs

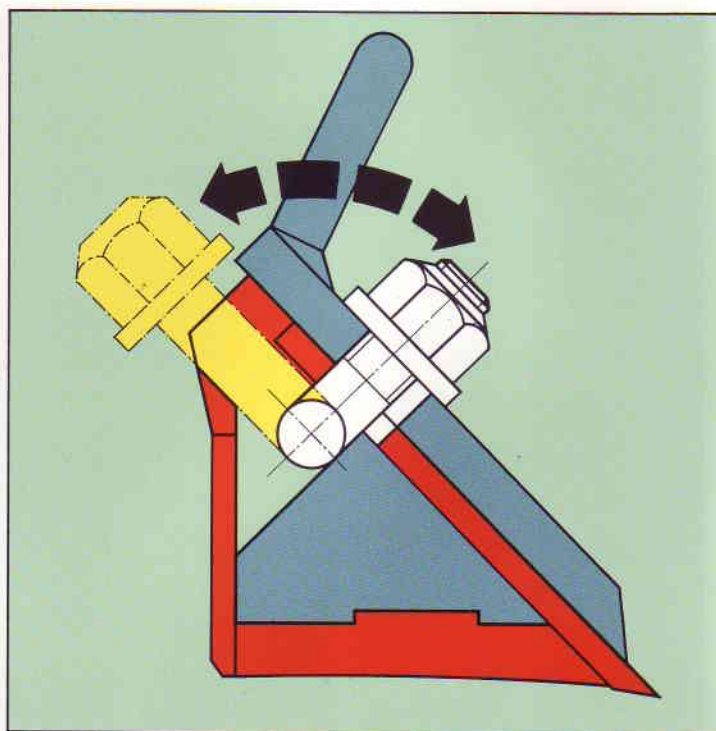
Ingeniously simple

For removal of knife packages the knifering is moved to the grinding room on a knifering transportation carriage. The knife change can now take place in clean surroundings at a time convenient to the maintenance personnel. The knife packages are fixed in the knifering with tilt studs.

When changing knife packages loosening of the dome nuts with a pneumatic torque wrench by only one turn is sufficient to tilt back the special studs. The knife package can now be removed with one grip and be replaced by a reconditioned one holding a sharp knife. The new knife package is automatically located in its precise position by sliding its guide grooves over the fixing plates of the carrier segment. The tilt studs can now swing back for tightening of the dome nuts with a torque wrench.

To exchange the next knife package in the same convenient working position the knifering can easily be turned while sitting on the transportation carriage.

Only a few minutes are required for the actual knife change. Readjustment of knife packages after sharpening of the knives is done in a simple one step procedure facilitated by an electro magnetic setting device.



Single head torque wrench for quick changing of knife packages within the machine

PALLMANN will also supply on request flakers of the new PZKR series without the hydraulic knifering changing system.

In this case the knife change will take place through an access door on the side of the machine housing. The knifering remains installed and the front machine door stays closed.

One additional set of knife packages per flaker is sufficient. All knife packages are interchangeable.

Knife Adjustment

Quick and precise

Even untrained operators will be able to easily adjust knives and impeller wear plates.

A prepared package of knife holders with sharp knives will be put into the adjusting device. Strong air cylinders push the knife guided in the holder against stops. Then the fixing screws are tightened with a torque wrench to the required torque.

The condition of the working edges of the impeller wear plates and their clearance to the knives are considerably influencing the flakes quality. In order to guarantee easy and efficient maintenance as well as constant flake quality of the wear plates they can be exchanged with a quick release system, resharpened and reset outside of the machine in a special jig.



PALLMANN Knifering-Flaker

Fighting wear

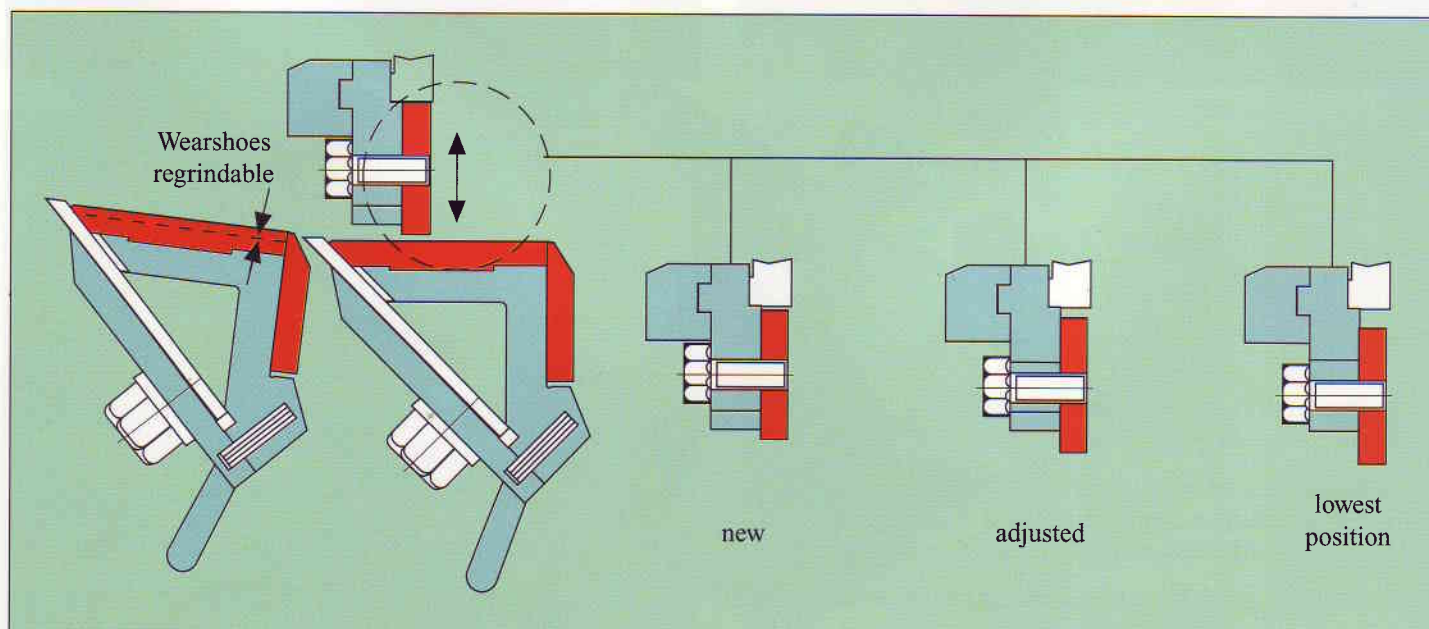
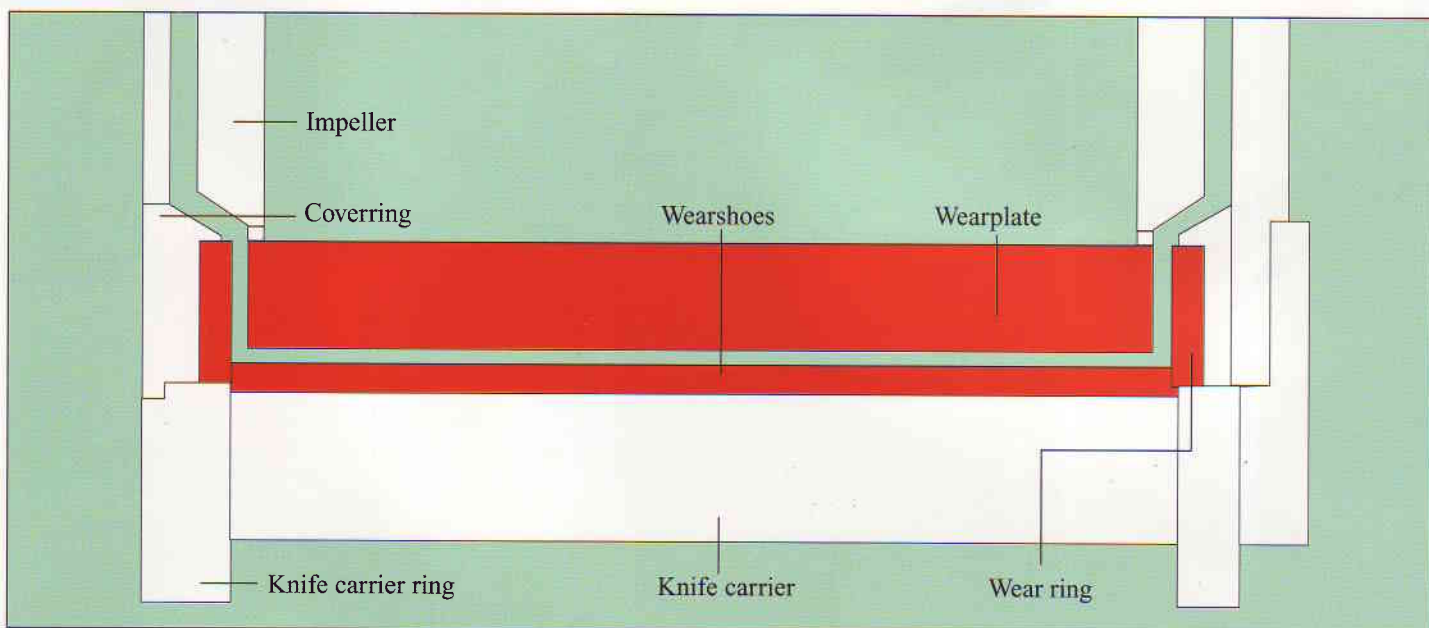
Simple and effective

When designing the Compact Flaker special attention was paid to fight deterioration by wear.

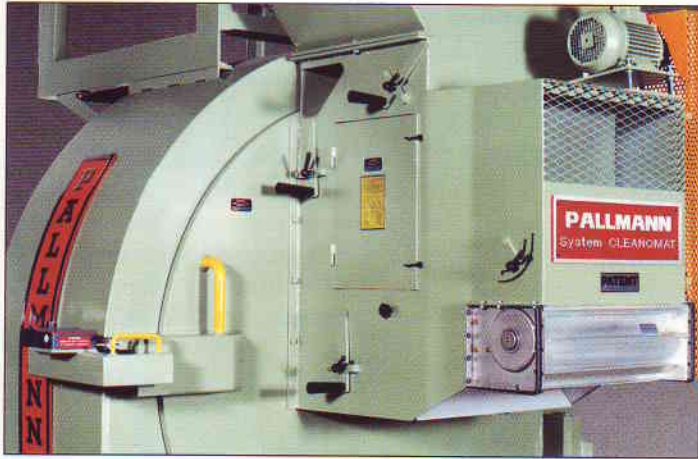
The turbo impeller is now equipped with especially strong guide plates whose leading edges are armour plated. The impeller wear plates are adjustable and regrindable. Replaceable and regrindable wear shoes made of a special armour steel are protecting the inner face of the knifering. The rear knifering carrier and the front knifering cover have their wear zone protected by replaceable wear rings.

The flake discharge gaps are maintained by adjustable pressure lips. Escape of oversize splinters into the finished flake material is avoided.

The Flaker can be kept in a good condition without big expenses and efforts by occasionally readjusting, respectively regrinding of the wear parts. The result is good and uniform flake quality over a long period of time.



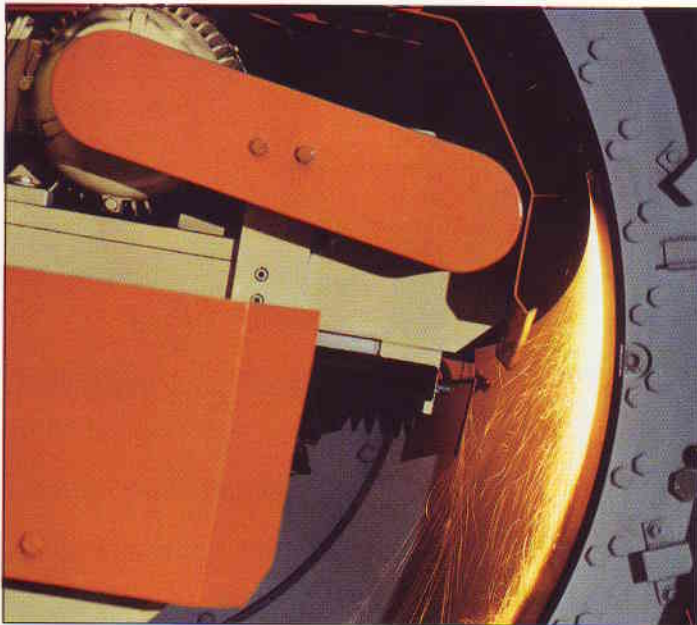
Recommended Accessories



"Cleanomat" – Patented

The gravity separator "Cleanomat" can remove foreign matter from the infeed material before it reaches the flaking area.

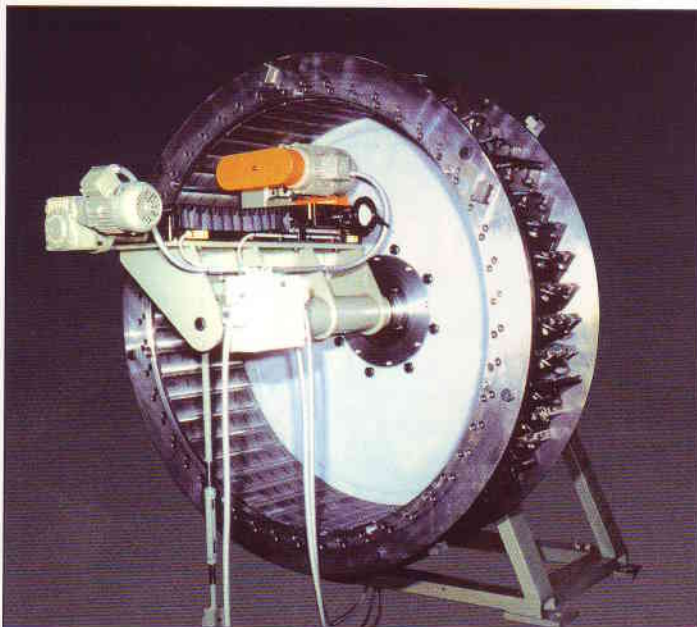
In conjunction with the feeding system consisting of a vibro-feeder with integrated screen decks and a drum magnet it ensures an intensively precleaned chip flow to the flaker. A system of adjustable air guide baffles working together with a support fan allows flexible adjustment to changing operating conditions.



PZSE-Sharpening and Setting Robot – Patented

The knives of knife ring flakers have to be resharpened and reset in regular intervals. These are time-consuming and labour-intensive operations. Precision of knife setting is heavily depending on the care of the operators.

With the "ORIGINAL PALLMANN" knife sharpening- and setting robot, knives are fully automatically resharpened and reset, taking the actual condition of the inner faces of the knife-ring as a reference for precise knife protrusion. This means reduction of the total time and labour required to complete this operation and because of the high precision of the knife setting constant high flake quality with the option to define flake quality parameters and use them in automatic process control systems.



Wear shoe grinding machine

Accurate knife protrusion and constant clearance between knife and back pressure lip considerably influence a constantly good flake quality. Wear shoes and back pressure lips installed in the knifering are exposed to natural wear.

In order to ensure accurate knife protrusion, however, precise reference surfaces are required. Therefore we offer a special grinding machine for regrinding of the wear parts and bring the knifering back to absolutely cylindrical shape.

PALLMANN Knifering-Flaker

Proven Installation Examples

We gladly advise you in selecting the most practical type of installation to suit your local conditions. We also assist you in choosing infeed as well as outfeed systems.

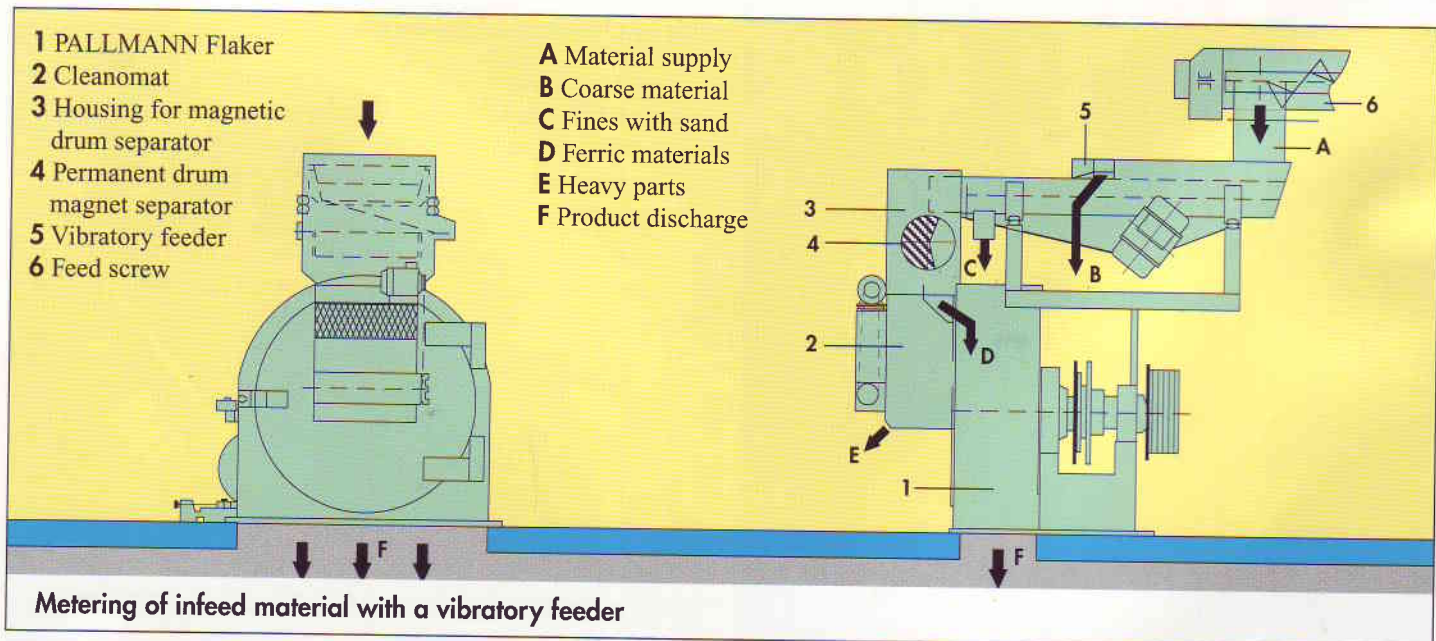
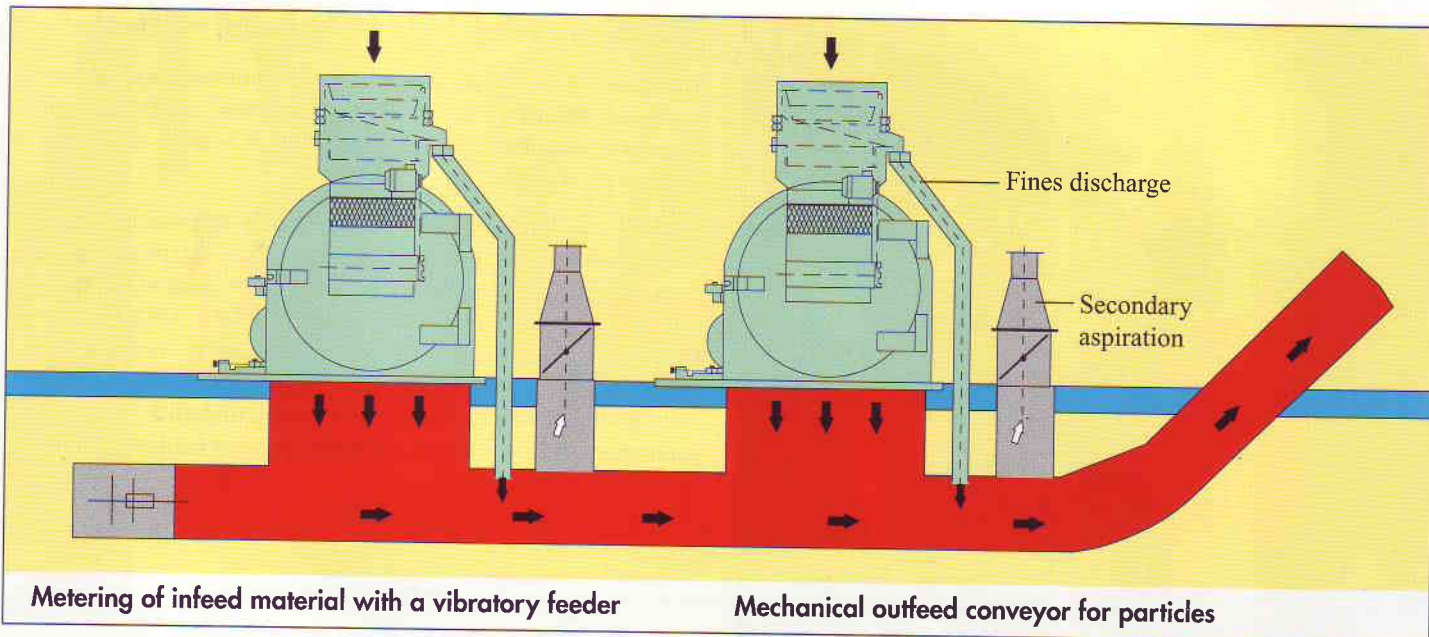
Everything from the same supplier

Our integrated feeding system represents the ideal solution for problem free feeding of our machines. It consists of:

- ☐ Flaker
- ☐ Gravity Separator "Cleanomat"
- ☐ Housing for magnetic drum separator
- ☐ Permanently magnetic drum separator
- ☐ Special vibratory feeder with screen deck
- ☐ Feed screw

Special advantages:

- ☐ Uniform material infeed
- ☐ Excellent chip distribution in the knifering
- ☐ Additional protection against ferric or non ferric foreign matters travelling in the feed material



Technical Data

The capacity of a flaker depends largely on the total length of all installed knives, the cutting angle, the knife protrusion and the type of infeed material.

Uniform feeding, a good knife quality, cleanliness of infeed materials and many other factors influence the throughput rates. Guaranteed throughput rates are reached easily and maintained as well during continuous operation. Many of our customers surpass these rates by a considerable margin. The performance data are based on uniform feeding, perfect flake outfeed and proper flaker condition. Downtime for knife changes is not included.

Model Name PZKR		6-225	8-300	12-300	12-375	12-450	14-450	14-525	16-600
Impeller motor	[HW]	55-75	100-132	160-200	200	200-250	250-315	315	315-400
Knifering motor	[HW]	5,5	11	18,5	18,5	18,5-22	22-30	22-30	30-37
Cutting circle	[mm]	600	800	1200	1200	1200	1400	1400	1600
Knife length	[mm]	225	300	300	375	450	450	525	600
No. of knives	[pcs.]	21	28	42	42	42	49	49	56
No. of impeller plates	[pcs.]	9	12	18	18	18	21	21	24
Total knife length	[m]	4,72	8,4	12,60	15,75	18,90	22,05	25,72	33,6
Total imp. plate length	[m]	1,98	3,54	5,40	6,65	8,01	9,25	10,92	14,28
Knifering change	[min]	5	5	5-10	5-10	5-10	10-15	10-15	15-20
Knife change	[min]	5-10	5-10	15	15	15	15-20	20-25	20-25
Net weight without motors	[kg]	1500	2950	5200	5800	6500	7500	8200	10800
Air capacity of machine	[appr.. m³/h]	3000	4200	5100	6000	7200	8400	9600	12000

Throughput rates in to/hr (oven dry)

Wood species	Flake Thickness mm	6-225	8-300	12-300	12-375	12-450	14-450	14-525	16-600
Conifers	0,3	0,9	1,6	2,4	3,0	3,6	4,2	4,8	6,0
	0,4	1,2	2,2	3,2	4,0	4,8	5,6	6,4	8,0
	0,5	1,5	2,7	4,0	5,0	6,0	7,0	8,0	10,0
	0,6	1,8	3,2	4,8	6,0	7,2	8,4	9,6	12,0
	0,7	2,1	3,7	5,6	7,0	8,4	9,8	11,2	14,0
High density wood	0,3	1,1	1,7	2,6	3,3	3,9	4,6	5,3	6,6
	0,4	1,4	2,3	3,5	4,3	5,2	6,1	7,0	8,0
	0,5	1,6	2,8	4,4	5,5	6,5	7,7	8,8	11,0
	0,6	2,0	3,3	5,2	6,5	7,8	9,2	10,6	13,2
	0,7	2,3	3,8	6,0	7,5	9,0	10,8	12,4	15,4
Low density wood	0,4	0,8	1,5	2,2	2,8	3,4	3,9	4,5	5,6
	0,5	1,1	1,9	2,8	3,5	4,2	4,9	5,6	7,0
	0,6	1,3	2,3	3,4	4,2	5,0	5,9	6,8	8,4
	0,7	1,5	2,6	4,0	4,9	5,8	6,9	7,9	9,8

Main dimensions [mm]: **A** = Total height, **B** = Center inlet to center outlet, **C** = Total width, **D** = Depth without motors

A	1050	1450	1780	1975	1975	2175	2175	2415
B	475	705	705	740	775	780	820	920
C	1300	1670	1960	2150	2150	2350	2350	2690
D	1840	2450	2500	2650	2700	2800	2840	3100