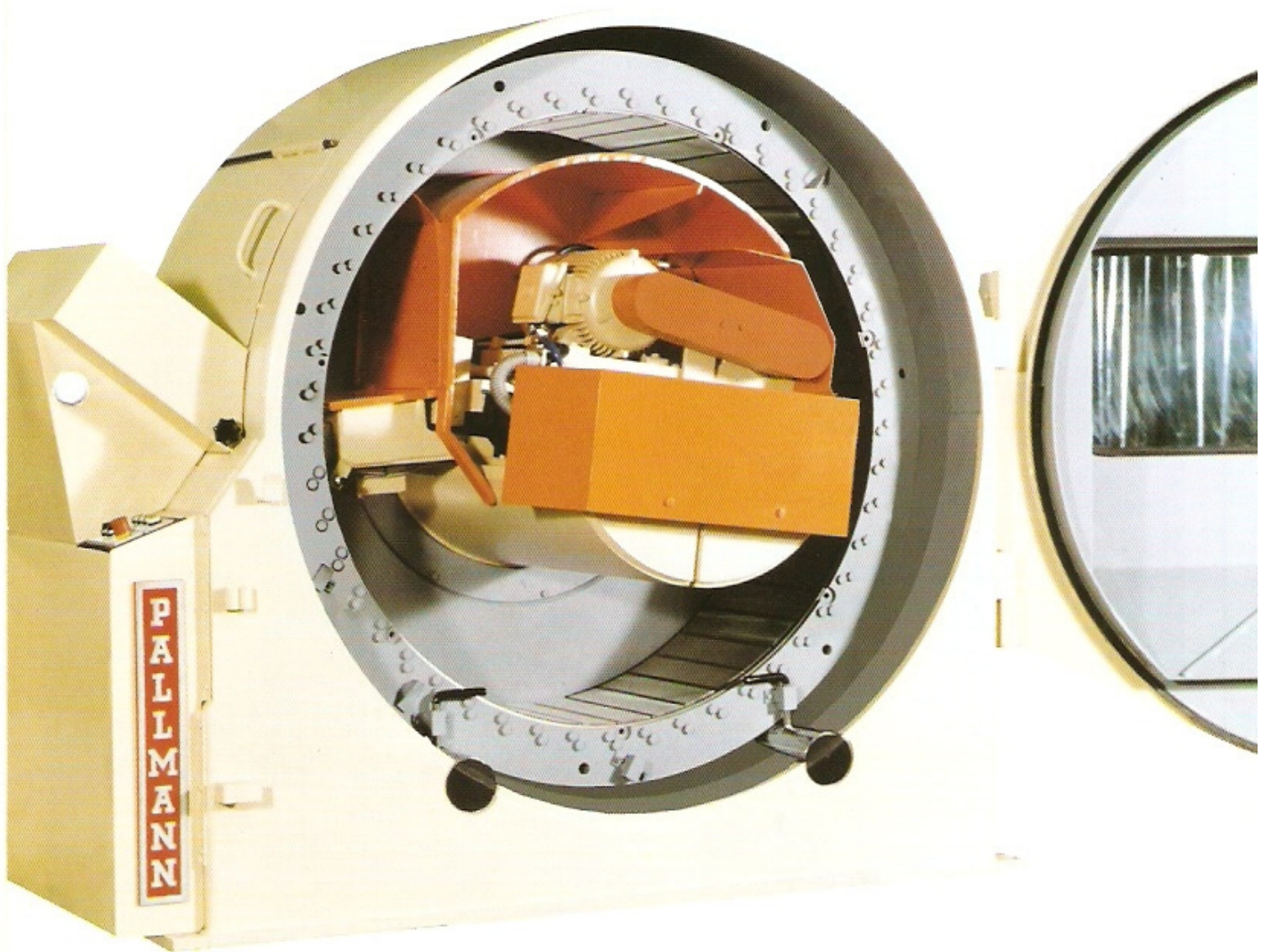


PALLMANN

Sharpening and setting robot

Fully Automated Sharpening and Setting of Ring Flaker Knives

Type PZSE
- Patented -



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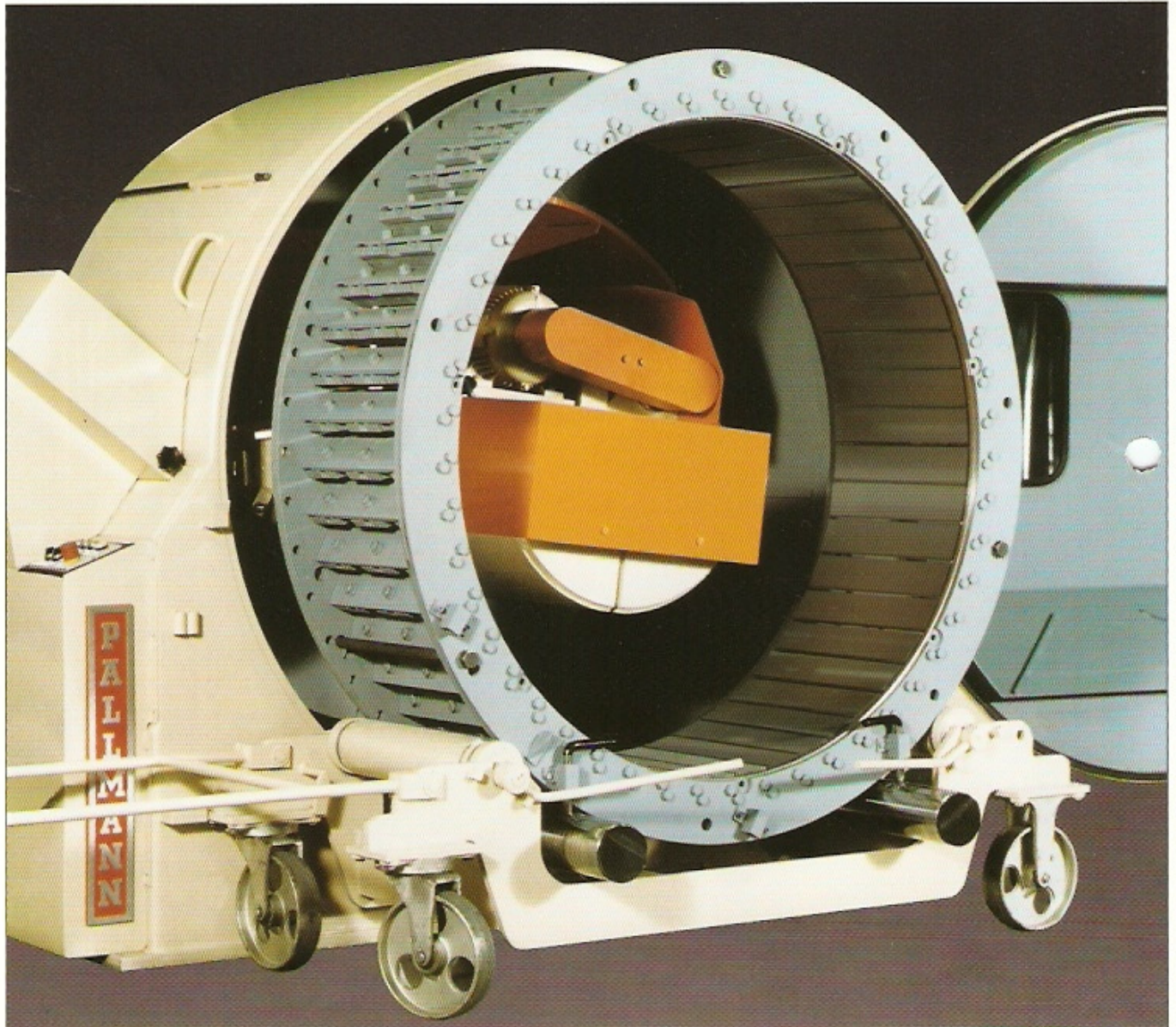
Sharpening and setting robot – Reduced production cost

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.

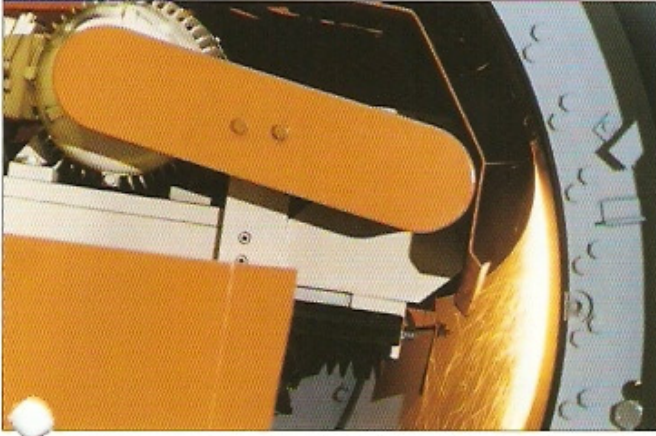
With the "ORIGINAL PALLMANN" knife sharpening and setting robot, knives are fully automatically resharpened and reset, taking the actual condition of the inner faces of the knife ring as a reference for precise knife protrusion. This means reduction of the total time and labour cost required to complete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

Method of operation

The knife ring with dull knives is placed onto mounting cylinders which hydraulically transport it to the carrier disc inside of the robot. After clamping of the knife ring to the carrier disc and closing of the housing door, the fully automatic process is started. The predetermined knife protrusion is entered into the central computer. Electronically controlled, intelligent torque wrenches loosen the knife clamping bolts, pushers move the dull knife forward against stops. Then the knife clamping bolts are tightened again with the required torque. The knife ring moves forward into the next knife carrier position. The above procedure is repeated until all knives have been moved forward against the stops and then the automatic sharpening program is started.



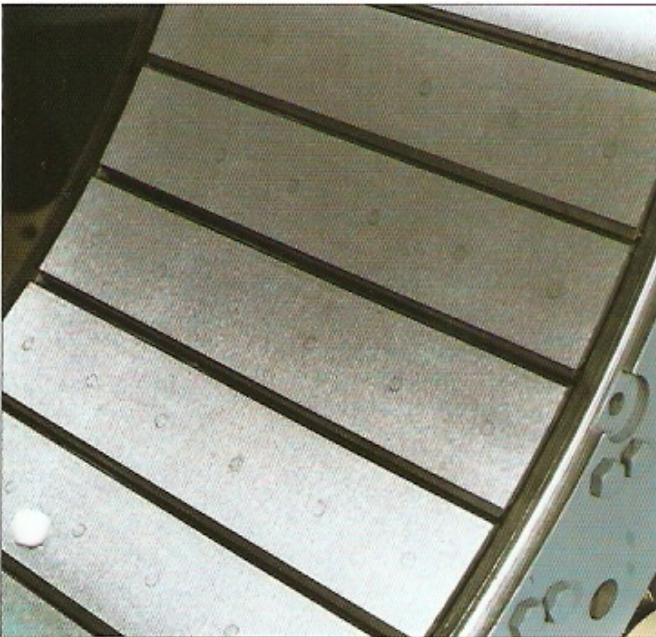
- high precision - constant flake quality



The Sharpening Process

The knives are resharpened with a wet grinding process while installed in the rotating knife ring. The sharpening unit is mounted onto a support. The advancing of the grinding disc and the oscillation along the knife length are very precisely, electronically controlled. After all knives have been resharpened to the predetermined knife protrusion, the knife ring will be cleaned with a special cleaning system inside of the robot.

After approximately 45 minutes, the complete resharpening and resetting process is finished. The precisely resharpened and reset knife ring is hydraulically released from the PZSE-robot and can be transported to its intermediate storage position, ready for installation during the next knife ring change.

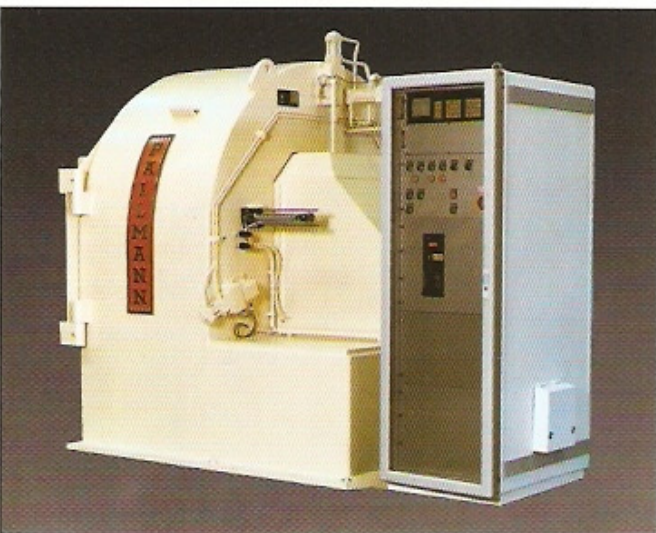


The Result

Independent from the inner diameter of the knife ring high accuracy knife protrusion is guaranteed. This results in a narrow flake thickness distribution curve and in an unprecedented constant flake quality.

The knife ring condition diagnose system integrated into the sharpening and setting robot shows in a display the electronically controlled actual wear condition of the inner faces of the knife ring. A knife ring control protocol can be printed out, offering the reliable basis for preventive maintenance on the knife ring without the need for time-consuming manual checks.

The sharpening unit of the robot has also been designed for resharpening of the wear shoes and back pressure lips of the knife ring in one single operation. This feature offers the opportunity to maintain wear shoes and back pressure lips in optimum condition which is, besides the care for precisely resharpened and reset knives, the most important prerequisite for excellent, constant flake quality during the full life time of the wear parts installed in the knife ring.

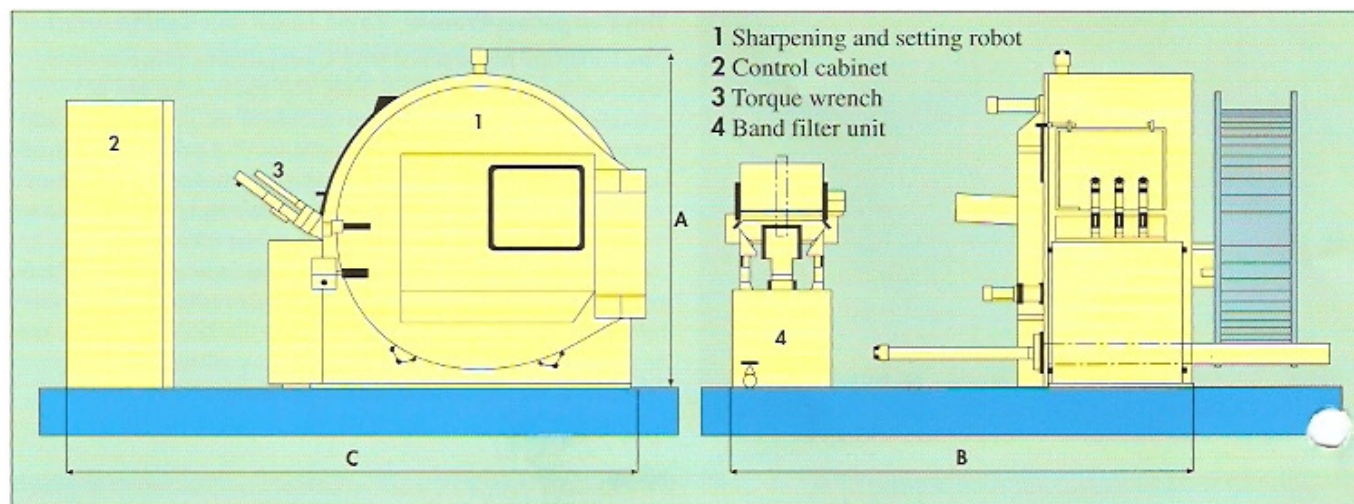


The Control System

The actual wear condition of the knife ring is picked up via sensor technique. The central processing unit processes the data together with the entered knife protrusion and fully automatically controls the sharpening and adjusting procedure. When the maximum admissible usage of the knife width and the thickness of the wear shoe has been reached, a message appears on the display via a maintenance program. Defective knife clamping bolts are detected and displayed.

An on-line data transfer to a central process control unit of the main system can be implemented at any time allowing continuous control of the flake thickness in the central control room of the plant.

The decisive advantages of the PZSE-System



- Fully automated sharpening and resetting process. Operator required only for installation and removal of the knife ring.
- Constant flake quality. Narrow thickness distribution curve because of high accuracy of knife protrusion.
- Predetermined knife protrusion and grind off.
- Electronic control of tightening torque of the knife fixing bolts and electronic control of bolt condition.
- Grinding of wear shoes and back pressure lips is possible with the PZSE-system as well.
- PLC-controlled integrated diagnose and preventive maintenance program with the option for online data transfer to a central control unit.
- All users of Pallmann knife ring flakers type PZKR can take advantage of the revolutionary PZSE-system.

Technical data

Machine type	PZSE 12-450/42	PZSE 14-450/49	PZSE 14-450/66	PZSE 14-525/66	PZSE 15-450/74	PZSE 15-500/66	PZSE 20-600/72
Knifering diameter	1200 mm	1400 mm	1400 mm	1400 mm	1500 mm	1500 mm	2000 mm
Number of knives	42	49	66	66	74	66	72
Knife length	450 mm	450 mm	450 mm	525 mm	450 mm	500 mm	600 mm
Motor grinding disc	7.5 kW						
Grinding disc dimensions	(D x B) 400 x 120 mm						
Electric power supply	30 kW						
Compressed air supply	P = 5 bar						
Compressed air requirement	V _{max} = 100 l/min. at P = 6 bar						
Cycle time	45-50 (min.)	45-50 (min.)	50-55 (min.)	50-55 (min.)	50-55 (min.)	55-60 (min.)	60-65 (min.)

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Leading the world in wood flaking technology.

Pallmann Maschinenfabrik
GmbH & Co.KG
Wolfslochstraße 51, Postfach 1652
66466 Zweibrücken/Germany
Phone: +49 6332 802-0
Fax: +49 6332 802-106
Email: management@pallmann-online.de
<http://www.pallmann.de>

Pallmann Pulverizers
Co.Inc.
820 Blomfield Ave.
Clifton NJ 07012, USA
Phone: +1 973 471 1450
Fax: +1 973 471 7152
Email: pallmann@bellatlantic.net
<http://www.pallmannpulverizers.com>

Pallmann do Brasil
Ind.e Com Ltda.
Av. Presidente Juscelino, 11 56
09950-370 Diadema S.P., Brasil
Phone: +55 11 745 3044
Fax: +55 11 745 4968
Email: pallmann@pallmann.com.br
<http://www.pallmann.com.br>

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