

AT MAGURIT, REMSCHEID

Constant pressure and flow rate



KNOLL MX50R progressing cavity pumps ensure reliable pumping of chopped-up frozen foods

Fruit juices are frequently made from frozen concentrate, which must first be chopped up and then conveyed with progressing cavity pumps for further processing. The special systems manufacturer MAGURIT prefers KNOLL Maschinenbau's MX pump for this, which if necessary can be equipped with an additional bridge breaker.

With its special machines for the chopping of fresh and frozen goods, MAGURIT, which was founded more than 150 years ago and is headquartered in Remscheid, is a market leader in the food and animal feed sector. Its comprehensive line of machines, which are sold worldwide, includes the DRUMCUT® 328 and 329 systems, which are ideally suited for manufacturing fruit juices and jams. This rotating cutting system chops up frozen fruit juice concentrate or fruit pulp and conveys the mass for further processing. The complete DRUMCUT® system consists of a roll conveyor, lift-tip device, crusher unit, sack-wringing machine, and the appropriate conveyor devices and pumps for product dispensing.

For the manufacturing of juices, progressing cavity pumps are used first and foremost for conveying after chopping; this system builder prefers to order its pumps from KNOLL Maschinenbau, Bad Saulgau. MAGURIT Managing Director Dino Vieth values this partnership for several reasons: "KNOLL provides excellent, high-quality products that suit our systems. The company is also always receptive to special requests."

Even the standard models of the KNOLL MX progressing cavity pumps feature numerous strengths, which are due primarily to their special design characteristics. The essential difference between these and conventional progressing cavity pumps is that the MX features the EvenWall® technology. This means that the stator sheathing is adapted to the inner contour of the stator and it has an elastomer layer with an even wall thickness. This provides numerous benefits as compared to conventional designs that feature a cylindrical exterior geometry of the stator sheathing and accordingly varied wall thicknesses of the elastomer.

The MX progressing cavity pump achieves much greater pressure stability, less back-flow, longer durability, better efficiency, less shearing of the product, and better suction behavior. In addition, with a closed chamber, the MX pump provides pressure of at least 10 bar, while conventional progressing cavity pumps are limited to 4 to 6 bar. Thanks to its multi-stage construction, the MX progressing cavity pump achieves pressures of up to 80 bar.



Before processing fruit juice further, the frozen concentrate (here in barrels) is put into the chopper.



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A practical example: a hopper model of the single-stage KNOLL MX50R-100/10 progressing cavity pump is used for a delivered DRUMCUT® system, which removes frozen juice concentrate from 200 l barrels and chops it up. The MX50R-100/10 provides the necessary pressure and the appropriate throughput in order to charge the downstream production system as desired. However, MAGURIT Managing Director Dino Vieth had a special request: "For us, it was important that the MX pump reliably avoid bridge-building above the conveyor feed worm and thus plugging up the pump, something we had to combat with the pumps we

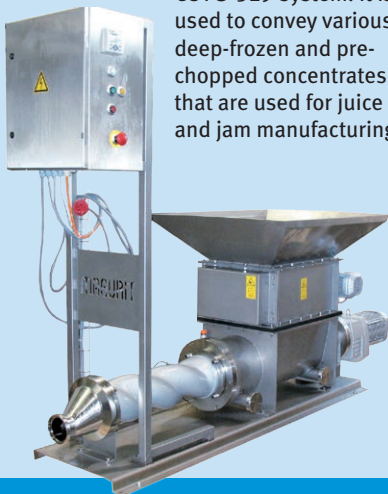
used previously."

KNOLL then equipped the pump hoppers with a separately-attached bridge-breaker that consists of two lances that intertwine with one another like combs. The drive power required for this movement is very low as compared to other units and is provided by a space-saving bevel geared motor. Despite its compact size, the pump succeeds in providing a controlled and fault-free conveying of the fruit mass. In addition, the incline of the conveyor feed worm in the hopper of the MX pump is precisely adapted to the pump set. This ensures a continuous, gentle, and low-pulsation product conveyance. This is supported by the very low rotational speed of the pump.

The entire pump design including bridge-breaker distinguishes itself through its small amount of dead space. Even with this hopper pump with

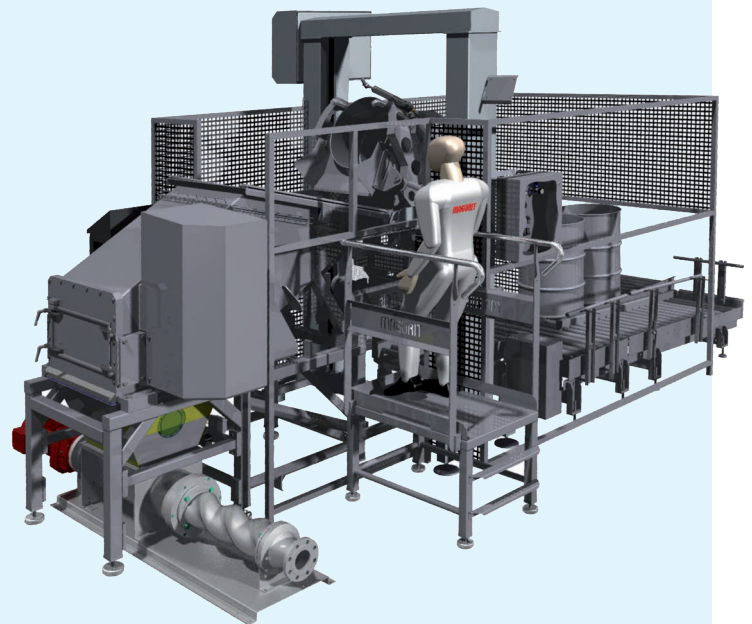
attached bridge-breaker, all components are constructed so that it is possible to clean the system on-site via the integrated connections in the housing without a backlog and without dismantling. It is even possible to replace the shaft seal with the pump installed without removing the intake and pressure-side lines.

The KNOLL MX50R 100/10 progressing cavity pump is a component of a MAGURIT DRUMCUT® 329 system. It is used to convey various deep-frozen and pre-chopped concentrates that are used for juice and jam manufacturing.



Properties of the MX

- Intelligent separation points for easy disassembly
- Maximum chamber utilization
- Vertical or horizontal position possible
- Can be used regardless of direction of rotation
- Self-priming pump up to 0.2 bar absolute
- Available as mobile or stationary pump
- CIP and SIP cleaning standard
- Closed pump system and therefore also suited for safety-critical media



For the further conveying of the frozen fruit juice concentrate after chopping in DRUMCUT® systems, MAGURIT prefers to use progressing cavity pumps from KNOLL Maschinenbau (left in the foreground).

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