

AT ISERNHÄGER

Mixing pump for bakery products



Isernhäger, the pioneer in machine-controlled starter doughs and sourdoughs, offers its customers advanced systems engineering and expertise in dough starter management technology. Isernhäger developed an all-in-one system for a customer in the baking industry by using a special version of the MX 30 progressing cavity pump by KNOLL Maschinenbau, Bad Saulgau, for effective mixing and pumping of starter doughs.

From industrial scale operations or chain outlet operators to craft producers, Isernhäger provides customer-focussed solutions for all types of starter dough. Quality and economy are key factors, and, accordingly, stringent requirements apply to all components used. The designers are constantly working to develop ideal solutions.

An important element of such an installation is the pump which mixes and conveys the dough (essentially water) with flour. In 2011, when Isernhäger was asked by one of its customers to develop a custom-configurable industrial installation with a fully automated production control system, it was decided to contact pumps specialist KNOLL Maschinenbau. The special design features of the MX progressing cavity pump had caught their attention.

EvenWall® is the unique selling point

The special feature of this pump is the use of EvenWall® technology, which clearly sets it apart from conventional designs. With EvenWall®, the stator lining is adapted to the contours of the rotor and coated in a layer of elastomer

with an even wall thickness. This has a number of advantages compared to conventional designs, where the stator lining has a cylindrical outer geometry and accordingly the wall thickness of the elastomer varies. The MX progressing cavity pump achieves not only much greater stability under pressure, but also offers less backflow, longer life, higher efficiency, less product shearing and enhanced suction performance. Whereas conventional progressing cavity pumps are limited to pressures of between 4 and 6 bar, the MX pump delivers a pressure of at least 10 bar with its chamber closed.

MX custom solution

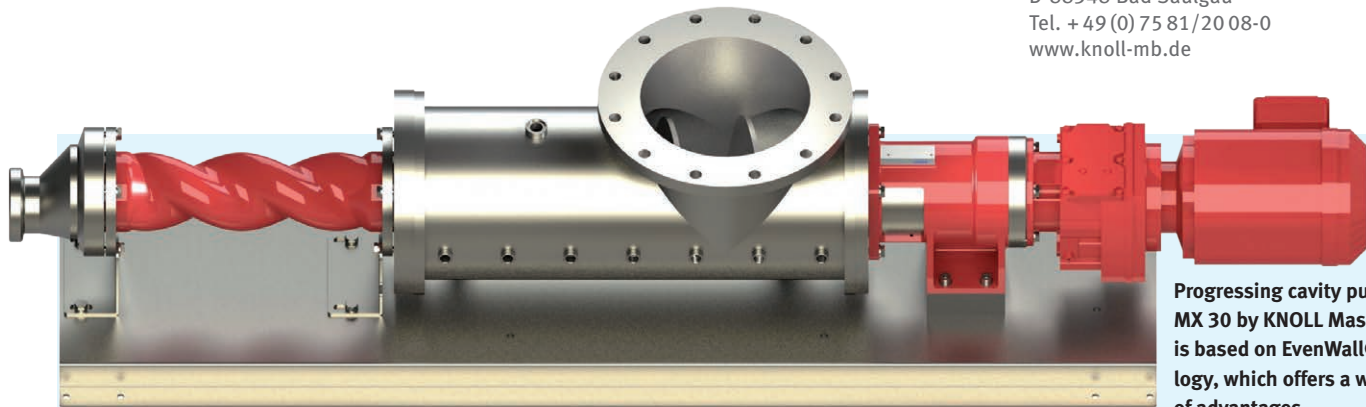
Isernhäger decided to collaborate with KNOLL, since the Bad-Saulgau-based pump manufacturer not only supplies the MX progressing cavity pump as standard, but also configures it to customer specifications. Working in close co-operation with the Isernhagen-based plant engineering company, KNOLL adapted its pump to meet the special requirements for dough mixing.

The basis was the type MX 30R pump – where R stands for the "Rachen", or mouth, which is used for feeding material. Reiner Völksen, of MX/KTSV Pump Sales at KNOLL, explains: "We have equipped this progressing cavity pump with a suction housing with a relatively large diameter and fitted the cleaning connections used for the CIP process with nozzles so that they can also be used for feeding fresh water." The pump is initially half-filled with fresh water via this inlet – the plant engineers are responsible for quantity control. The flour is then added via the

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Progressing cavity pump
MX 30 by KNOLL Maschinenbau
is based on EvenWall® techno-
logy, which offers a whole range
of advantages.

Image: KNOLL Maschinenbau



The MX 30R progressing cavity pump was customised for use in the dough mixing process at Isernhäger. Image: Isernhäger

mouth. The ingredients are stirred, mixed and conveyed by the pump. A processible dough finally leaves the pump after between one and two minutes. The achievable dough yield (100 g flour plus added water) is 220, a standard figure for starter doughs.

The main criterion is customer satisfaction

Reiner Völksen then goes into the technical details: "A large feed screw inside the pump provides the overfeed required by the pump assembly, thus making it possible to do all the mixing inside the housing." The welded and ground feed screw is additionally polished and trovalised for this application in order to eliminate even the slightest unevenness and obtain a perfect surface finish.

Following the mixing and pumping processes, the nozzles are used for cleaning. They are ideally positioned, exactly over the centre of the feed screw, allowing all traces of residue to be removed from the surface of the feed screw

in no time at all.

The end user was so happy with the system delivered that it has so far purchased another seven systems and held out the prospect of further investments.

Certified to EHEDG, QHD, GPM and 3-A

The KNOLL MX progressing cavity pump strictly complies with all hygiene requirements of the foodstuffs industry. These include that the design be virtually pocket free and that all metal parts in contact with the product be made of stainless steel. This material and high-quality elastomers – all certified for hygiene applications – increase the system's resistance to corrosion, temperature and chemicals. Furthermore, the MX is very easy to clean. CIP and SIP cleaning are standard. This means that the pump can be cleaned on site without leaving residues and without dismantling. With all these properties, the KNOLL MX progressing cavity pump satisfies the guidelines set out in EHEDG, QHD, GPM and 3-A.

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