

FlowControl – DESMA's new cold runner block technology with patent pending shut-off nozzles for every elastomer!

The demand for a reliable cold runner block (CRB) with nozzle shut-off technique has been existing for many years. Most of the systems to process silicone could not be used for rubber and exhibited big drawbacks in cleaning when changing the compound or after failures. Thus, these systems were only used in a very restricted way.

To provide the required shut-off forces reliably, the company DESMA decided to actuate every single nozzle by means of a separate hydraulic cylinder. These cylinders are located in a separate platen to prevent oil leakages towards the material side in case of problems.

Another challenge was to minimise the pressure drop caused by the flow around the shut-off needles. In standard CRB systems with needle-shaped locks, the needle traverses the total nozzle body which resulted in wetted sections with an unfavourable ring geometry of often more than 100 mm. The pressure drop in such systems was enormous particularly with high-viscosity compounds. Moreover, cleaning of the runners always involved a time-consuming complete disassembly which could be only carried out by qualified staff. Many hundreds of delivered units have been documenting that Desma in its in-house technical mould centre provides extensive experience in the production of open cold runner systems. Consequently, Desma was anxious to develop proven technical solutions further to cater to these new needs. Result is an actuating mechanism which is arranged outside the actual nozzle. The nozzle itself was realized with the self-sealing sliding nozzle which is noted for its use in open DESMA CRB systems, however, modified with shortened needles. From this followed an easy-to- dismantle shut-off system with an extremely rugged mechanics which features a very reduced flowing length around the needle (wetted section with unfavourable annular geometry) of about 15 mm only. Furthermore, a nozzle lengthening has not any impact on this length!

Hands-on trials have shown that a vulcanized rubber strip can normally be purged without having to disassemble the nozzle. If the sliding nozzle with shut-off nozzle has to be removed, it can be easily done from the outside.

The shut-off nozzles are individually actuated by one separate hydraulic cylinder each. This enables balancing of the flow rate per nozzle right at the machine control. To this end Desma developed a special hydraulic system combined with appropriate input masks in the control system. The special feature about it is that the set balancing can be stored along with the mold data record.

Thus, this CRB can be used for many molds of different balancing without having to carry out any mechanical modifications.

Another asset of the DESMA **FlowControl** CRB is its application in the production of large seals. The position of the material joining spots in the mold can be adjusted in a very flexible way by the machine control, and particularly at that place where a vacuum connection has been fitted. Due to the flexible volume adaptation of each individual nozzle, it is also feasible to manufacture articles of different sizes simultaneously.

It can be concluded that this innovative technique opens up new possibilities and fields of application. Many delivered DESMA **FlowControl** CRBs and their operation under production conditions are strong arguments for this innovation.

The benefits of the DESMA **FlowControl** CRB at a glance:

- Zero waste due to direct article injection
- Nozzle balancing via machine control
- Storage of the balancing parameters along with mold data record
- Ease of cleaning with compound change
- Slight pressure drops with the patent pending shut-off technique
- Safe operation even in case of high-viscosity compounds due to hydraulic actuation of the nozzle locks

Desma's new gasket machine

This Desma best seller among the horizontal machines, the D 969.300 Z (S1), was completely redesigned. Known as "gasket machine", it has always featured a very high specific pressure and an exceptionally stable clamping unit. Unlike the previous model, however, floor space was considerably reduced and motion speed decisively increased, as a result of the completely new-built clamping unit and mechanics of the machine. This compact design in combination with an efficient hydraulics ensure now less floor space required and faster cycles.

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