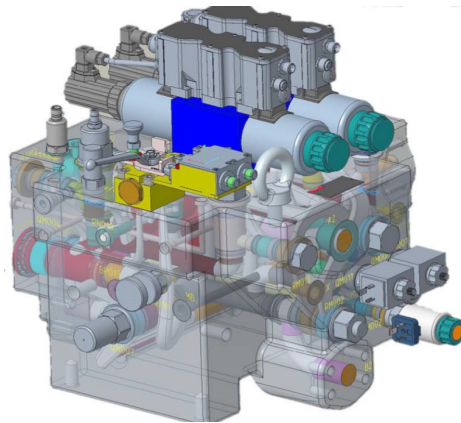
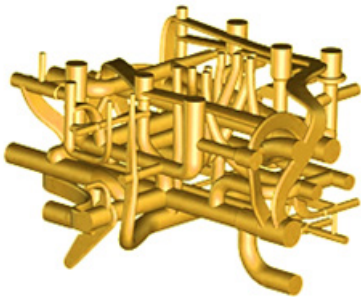


Additive Manufacturing of Manifolds

based on 3D-printed sand cores



Increasingly complex market requirements demand new approaches in hydraulic manifold design and manufacturing. We want to overcome technological boundaries of traditional technologies and implement technical and geometrical properties not possible before. For this we count on additive manufacturing methods: Manifolds based on 3D-printed sand cores. The opportunities of individual design as well as the integration of functions make it possible to realize optimized solutions according to the specific customers and applications.

The innovative construction and manufacturing technology allows the following advantages:

Individual geometries

External geometry:

Due to the 3D-sand core printing the outer contour of the control block can be designed individually in a simple way. Thus, an optimized and compact adaptation to the available installation space as well as an improved integration into the machine can be realized. At the same time unnecessary material is saved.

Internal geometry:

Internal geometries can also be optimized by eliminating the need for rectangular channel holes. This leads to customized positions of the connections and to increased service friendliness based on simpler installation and maintenance options.

THE BENEFITS AT A GLANCE

Individual geometries

- Compact adaption to installation space
- Optimized position of connections
- Simplified installation and service handling
- Cavitation reduction

Functional integration

- Integration of machine components
- Reduction of piping

Weight reduction

- Up to 30% reduction

Reduction of potential leakage

- Savings of auxiliary holes and maintenance effort
- Reduction of screw plugs eliminates potential leakage
- Improved control accuracy due to reduced dead volume

Energy efficiency

- Flow optimization
- Improvement of delta p
- Noise reduction

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Functional integration

Optimized design allows increased integration. In the construction, it is possible to integrate machine components such as filters in the manifold. The most important components are thus in one place. At the same time piping, screwing as well as accompanying installation effort in the machine is saved.

Weight reduction

By saving material, weight can be reduced by up to 30%. Particularly for dynamic applications a special advantage!

Reduction of auxiliary holes

Conventionally manufactured manifolds require auxiliary holes. For 3D-printed sand cores, channel holes no longer need to be straight, which leads to the avoidance of holes and screw plugs. Potential leaks and dead volume areas are thereby eliminated. This comes along with improved control accuracy and further reduction of assembly space and service effort.

Energy efficiency

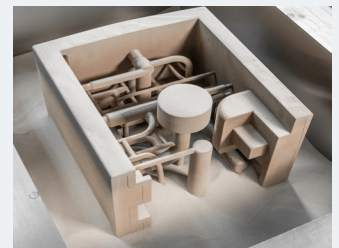
The adapted channel guidance also leads to flow optimization and increased energy efficiency. It comes to reduced pressure losses and noise reduction. Get the “last bit” out of your manifold!



Build envelope with 3D-printed sand core and surplus sand



Optimized channel guidance



Completed sand core

YOU ARE INTERESTED IN THE BENEFITS OF 3D SAND CORE PRINTING FOR YOUR APPLICATION?

Our team of experts assist you with advice and support!
Please contact your Bosch Rexroth sales representative directly.