



GENERAL RECOMMENDATIONS FOR ADDITIVE MANUFACTURED PIM TOOLING INSERTS

Dear Customer,

Outlined below are our general “good practice” guidelines for the use of additive manufacturing plastic injection molding tooling inserts. These guidelines have not been developed for a specific part or application, but are considered general good practice.

Please refer to these recommendations as an initial guide. However, if you do have any specific questions relating to your product or application our PIM experts are available to assist you. Our aim is to provide you the highest level of customer support.

Contact us:

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RECOMMENDATIONS FOR OPERATION & MAINTENANCE OF AM INSERTS

- » It is recommended using a reprocessed cooling medium regularly controlled for lime and pH values.
- » The build-up of scale in the cooling channels should be prevented to maintain optimum heat transfer. Whenever possible treated (softened) water should be used.
- » Conformal cooling channels can vary in size and dimension. Sometimes these channels will be down to e.g. 2–3mm in diameter. Therefore, sufficient filtering of the cooling medium should be done. For mechanical filter we recommend a mesh size of 200 microns.
- » Due to the difference of the cooling-channel dimension and cross section pressure drop might happen in some areas. Therefore, we recommend the use of separate or additional/individual pump units to optimize the flow rate and cooling media temperature in each line.
- » Try to feed multiple cores singular not serial connected. This will avoid flushing, collecting dirt in the core in the end of serial connection as well as a high pressure drop. If parallel channels are used a possibility should exist to check flow in each line.
- » Control and document always the flowrate. If the pressure drop in the circuit will increase, it shows something is going to block the circuit. In this case, a cleaning of the circuit by using a cleaning device to descale, deruste and degrease of cooling ducts is recommended. After cleaning, wet the channels with rust protection.
- » To prevent corrosion inside of the cooling channels we recommend the use of sufficient water additives or a corrosion resistant tool steel.
- » Ensure that the cooling medium is maintained to maximize heat transfer properties. Additive dosing regimens should be maintained and the medium is flushed or changed as per the supplier recommendations.
- » Where possible ensure the cooling circuits in mold are adequately deaerated (oxygen in the water increases aggressiveness and can lead to corrosion).
- » Ensure that heat exchangers are regularly maintained to maximize heat transfer efficiency (periodic cleaning to remove algae, scale and dirt).
- » We recommend using thermally isolated hoses for tempering lines from tempering unit to the mold.
- » Inspect fittings to ensure there are no blockages or restrictions that can limit cooling medium flow (between tempering unit and mold).
- » Clean the channels after each production run with an appropriate chemical for descaling (recommended 1-2 hours). As an alternative to chemical cleaning, use an ultrasonic cleaner. In addition to conformal cooling, we also recommend cleaning other areas such as vents, thin fins or similar.
- » Inspect the mold channels for debris, lubricant or any other foreign objects before putting in operation.
- » When storing molds flush the cooling channels with a preservative fluid and dry them to prevent corrosion when not in use.