# Manifold Installation: Designer's Guide

**Follow this guide for trouble-free hot-runner installation and operation.**

## Mould Steel

Always use pre-hardened steel of at least 32 HRc for all load-bearing plates, i.e. those carrying the bush heads and the pressure pads, to prevent 'hobbing in' by the hot runner components.

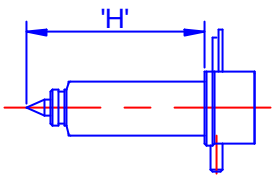
## Airgap Clearance

It is important to provide sufficient airgap clearance to minimise heat transfer from the hot runner to the tool. However, excessive airgaps can result in excessive heat loss from the system due to air convection (the chimney effect), resulting in a temperature imbalance in the system, as well as reducing the rigidity of the mould.

Do not leave the top or bottom faces of the manifold pocket open—cover them over with plates to prevent air convection occurring.

## Heat Expansion

Our bushes are supplied to catalogue length at room temperature, and allowance must be made on the tool height for thermal expansion.




Calculate this expansion by the formula:

'H' x 0.0000126 x (processing temp.$^{o}$C—tool temp. $^{o}$C)

Where 'H' is the distance from the bush shoulder to the bush tip.

Our manifolds are supplied with thermal expansion already compensated for, so that they match the drop centres in the tool at processing temperatures.

## Mould Cooling

Some heat transfer from the hot runner to the tool is unavoidable, especially on larger systems. To control the fixed-half tool temperature, we recommend that water cooling is provided in both the bush carrier plate and the clamp plate, in addition to the normal cavity cooling.

We also recommend the use of an insulation plate between the tool clamp plate and the machine platen if the tool is to be run hotter than 50$^{o}$C, in order to minimise heat transfer to the machine platen.

Always avoid having water connections at the top of the tool, where any spillage may get on to heater and thermocouple wires, and run a drain hole from the manifold pocket to the bottom of the mould to prevent any build-up of spillage or condensate.

## Assembly Screws

We recommend the use of two M12 cap screws per drop, located as close to the drops as possible, and holding the bush carrier plate—riser plate—clamp plate assembly firmly together.

## In-Press Gate Access

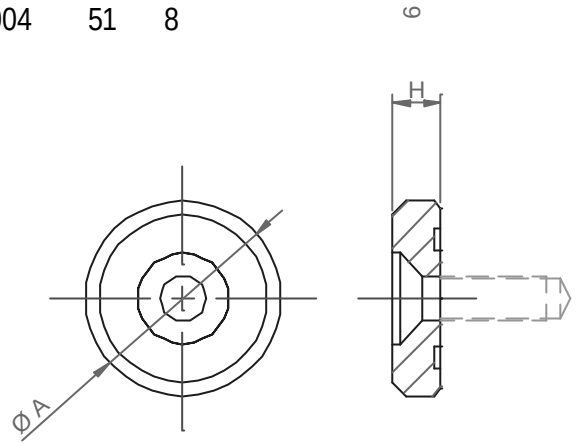
To minimise moulding machine downtime caused by blocked gates, damaged tips, or bush heater / thermocouple failure, we recommend that the tool be designed such that the cavity plate can be moved across to the tool moving half while in the press, thus exposing the tips and the gates for cleaning.

fast heat

## PRESSURE PADS

Material: Titanium

| Product Code | A | H |
|---|---|---|
| MAO10005 | 28 | 8 |
| MAO10004 | 51 | 8 |

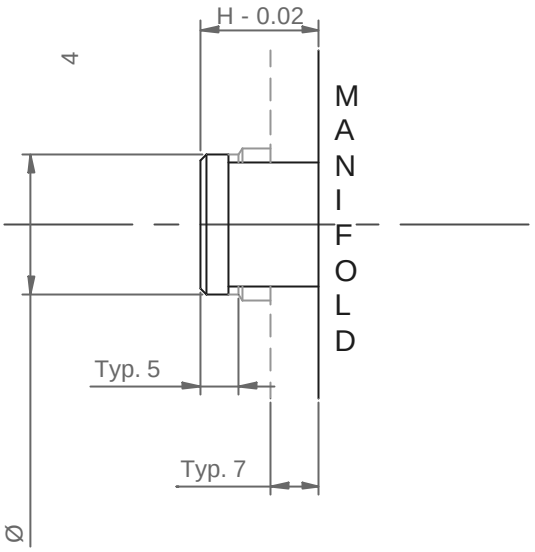



Supplied overheight—grind to required height (typically 7mm) during manifold installation. Fix to clamp plate with M6 countersunk head screw x 15mm deep.

## MANIFOLD LOCATORS

Material: Stainless Steel

| Product Code | A | H |
|---|---|---|
| MAO10008 | 20.00 | 17.00 |
| MAO10002 | 44.45 | 25.40 |

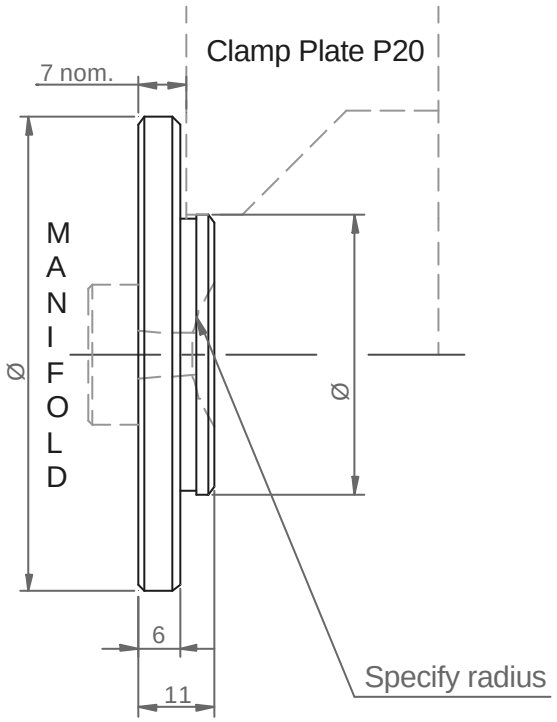



## NOZZLE LOCATOR

Material: Tool Steel

Product Code

MAO10000





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