

# MVG Valve Gate



smart hot runner solutions

[www.mastip.com](http://www.mastip.com)

Assembly Overview

**IMPORTANT!!**

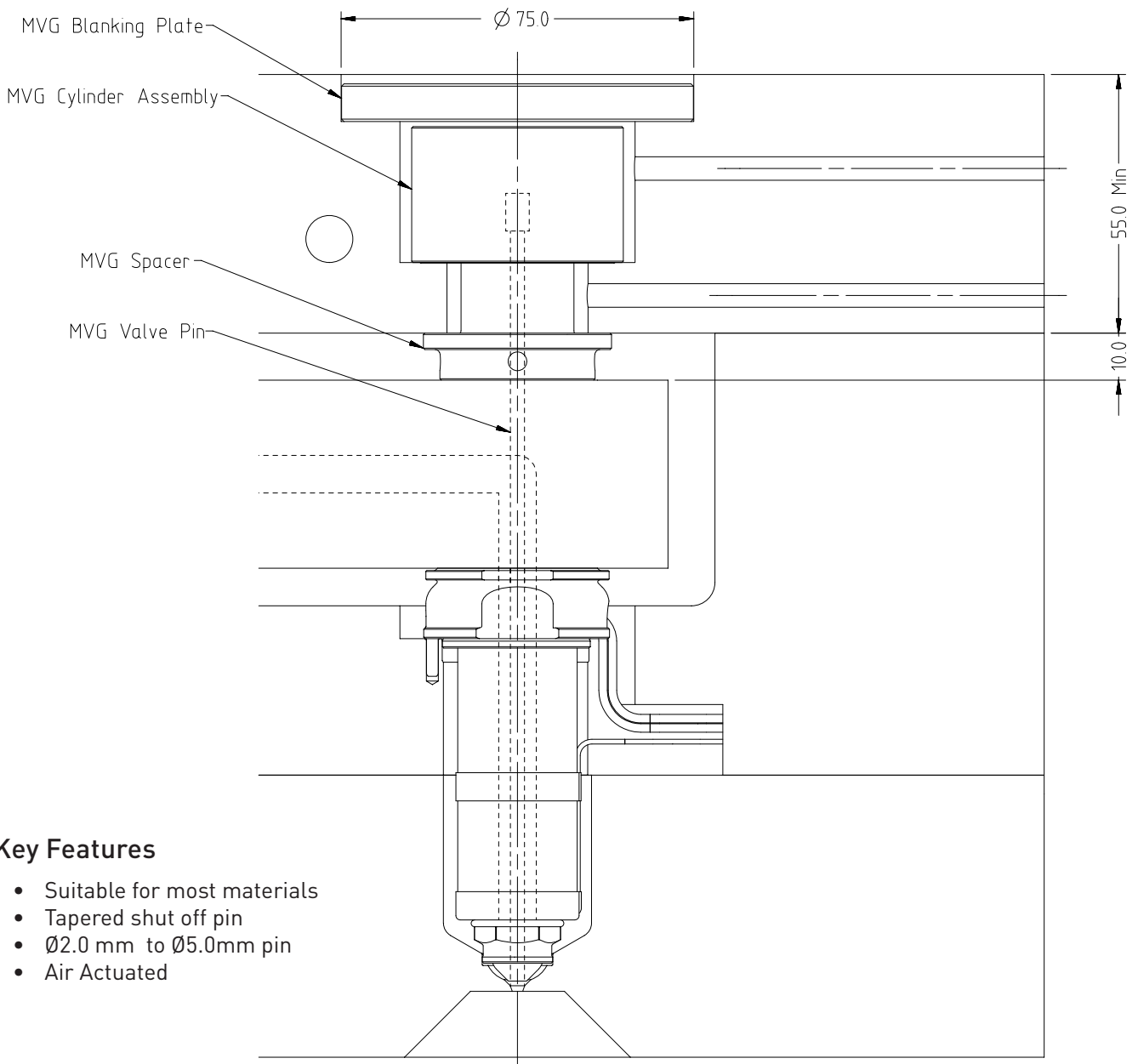
The back plate must be cooled and must not exceed 140°C.

The cylinder should be in the closed position at all times except during injection and packing.

**Air quality:** Filtered to 40 µM

**Minimum air** pressure 4 Bar

**Maximum air:** pressure 10 Bar

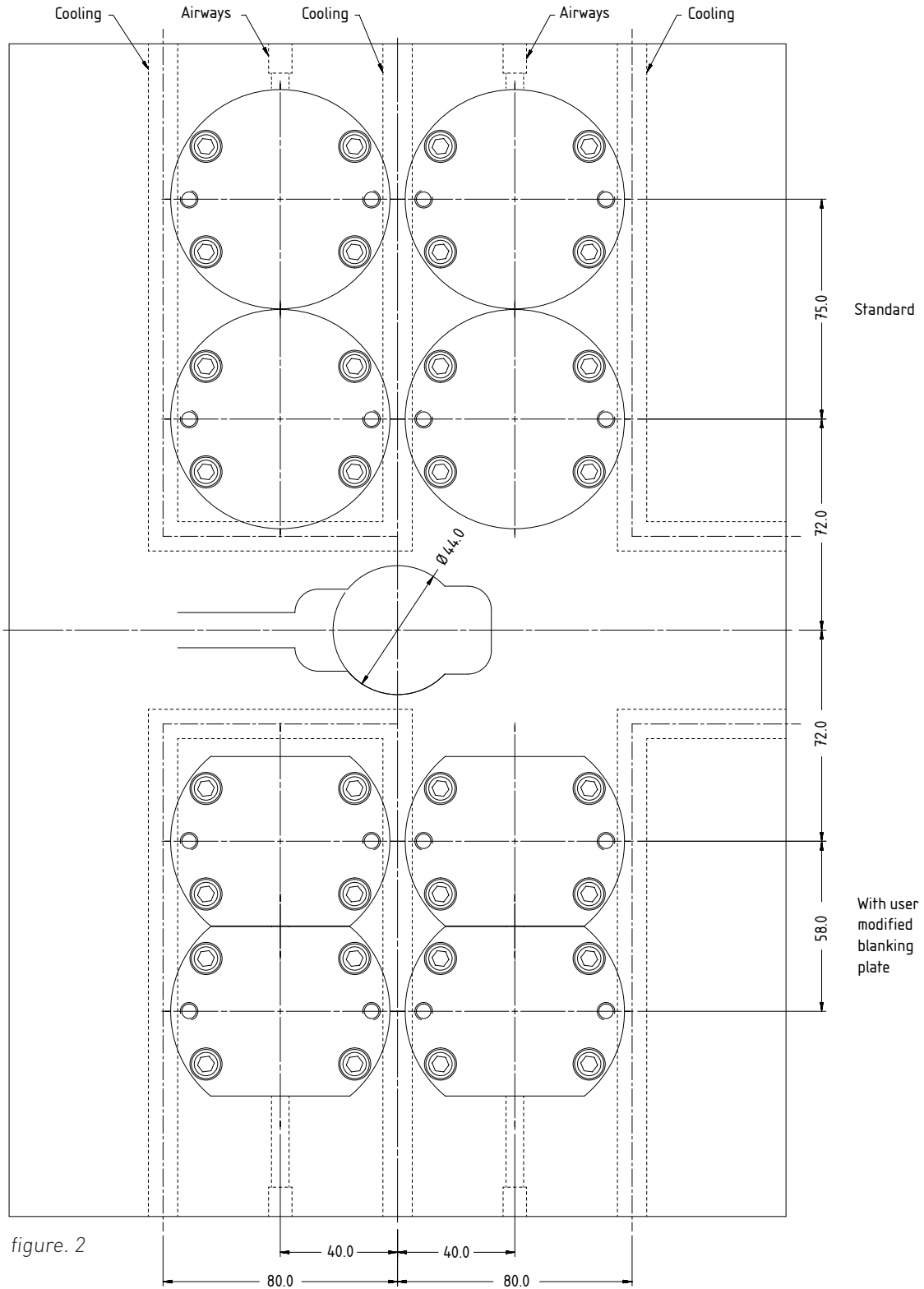


**Key Features**

- Suitable for most materials
- Tapered shut off pin
- $\varnothing 2.0 \text{ mm}$  to  $\varnothing 5.0 \text{ mm}$  pin
- Air Actuated

figure. 1

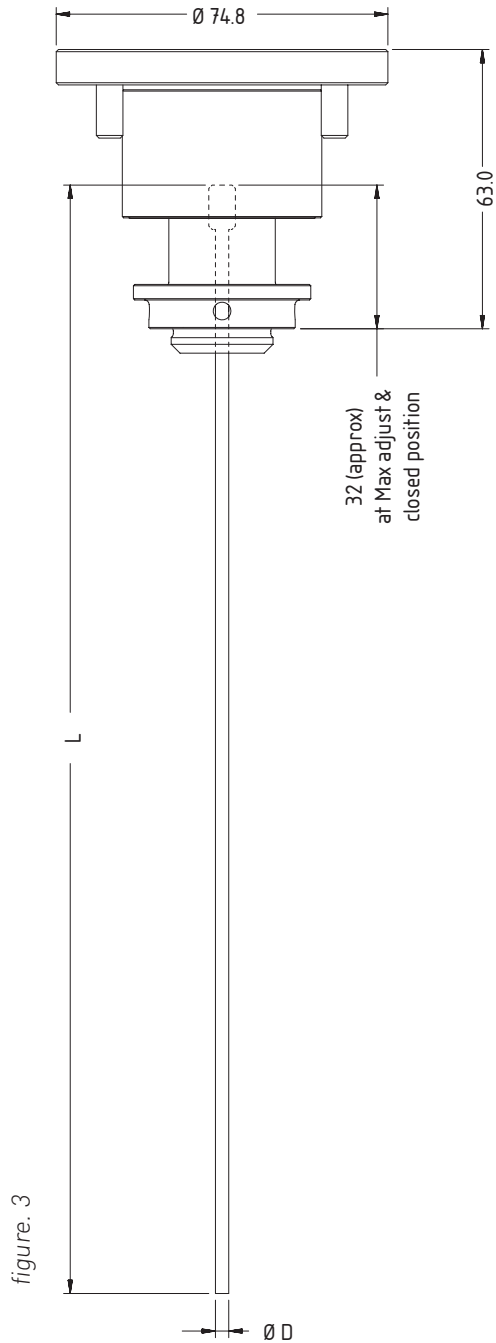
Spacing Layout



## MVG40 Overall Dimensions

**Note:** Pins are supplied in standard length and must be cut to required length by mould maker at time of installation.

→ Refer to MVG-12 Pin Calculations section to calculate required final pin lengths



## Nozzle Compatibility

Description	Nozzle	Tip	Nozzle Length	Supplied Pin Size (D x L)
MVG40 - 2.0 x 250	MX13 / BX13	OV	45 - 145	2.0 x 250
MVG40 - 2.5 x 250	MX16 / BX16	OV / TV	45 - 145	2.5 x 250
MVG40 - 3.0 x 250	MX19 / BX19	OV / TV	55 - 145	3.0 x 250
MVG40 - 5.0 x 350	BX27	OV / TV	75 - 175	5.0 x 350

## Fitment

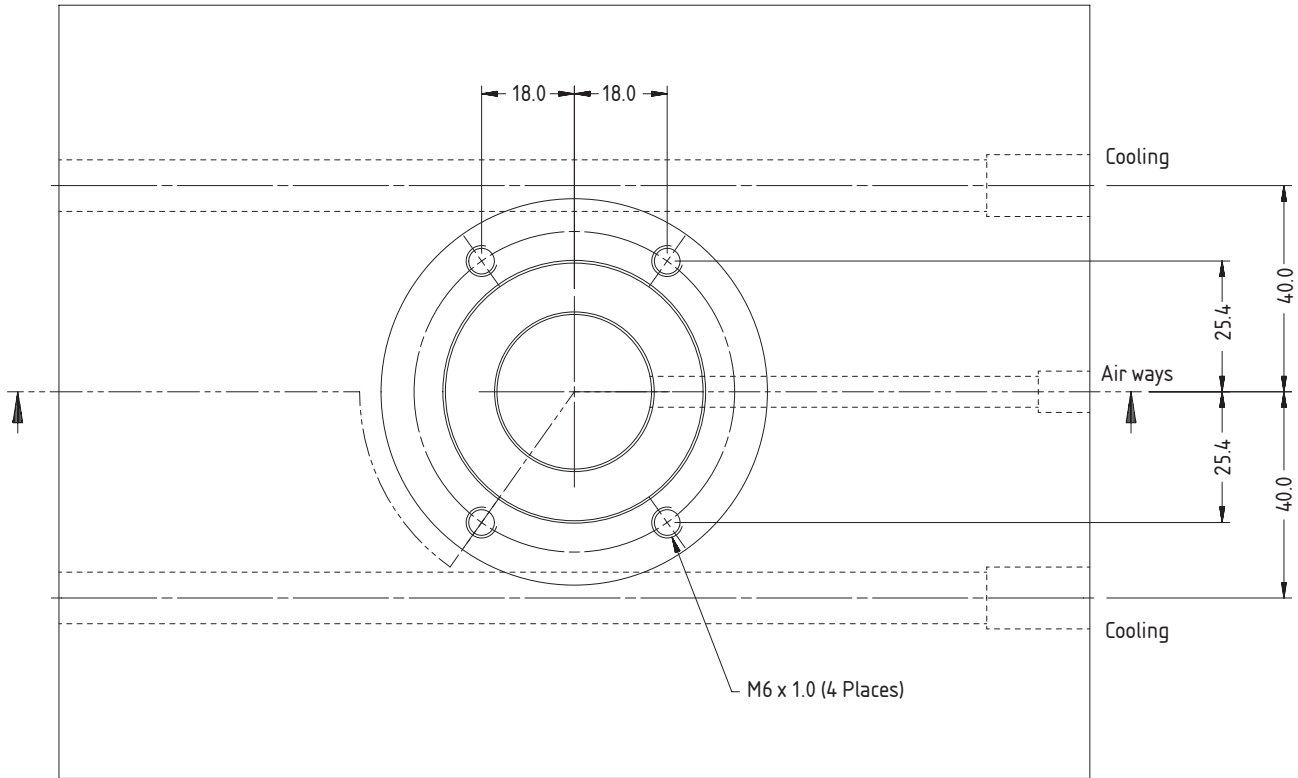


figure. 4

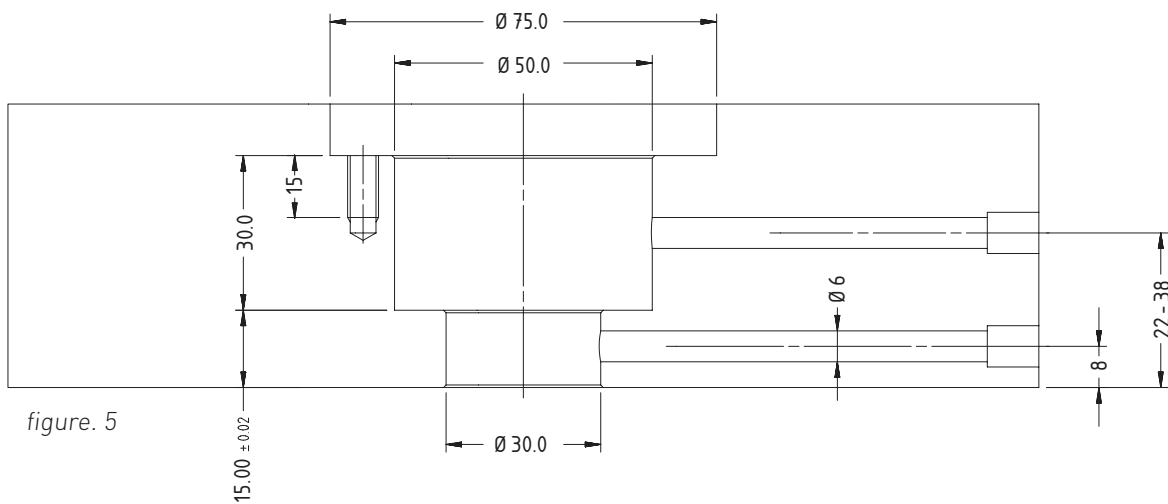
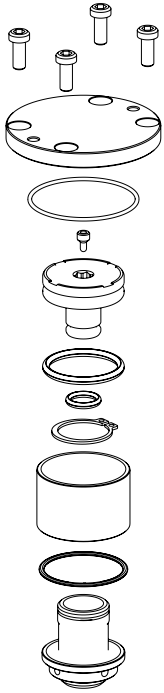


figure. 5

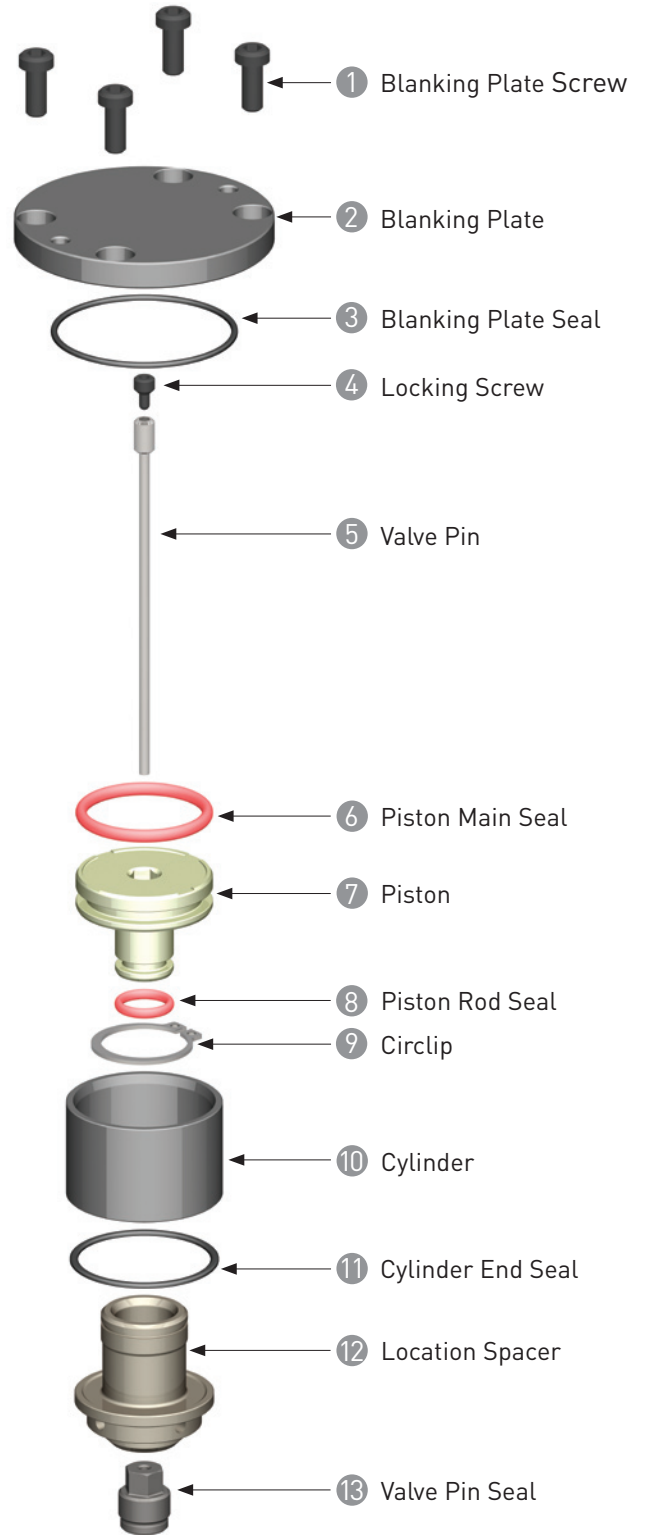
As Supplied

Exploded Diagram

A MVG CYLINDER ASSEMBLY



B MVG VALVE PIN + SEAL



## Installation and Pin Adjustment Guide

### PRE INSTALLATION

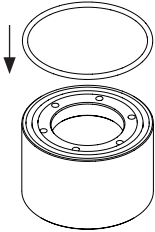
1. Verify the actuator pockets and air circuits are machined in the back plate as shown in fig 5.
2. Ensure there are no sharp edges or burrs in the actuator pockets.
3. Ensure the actuator pocket and air circuits are clean.
4. Cut pins to length and profile end to shut off angle (refer nozzle drawing ex-Mastip)
5. Assemble the fixed half of the mould including hot runner nozzles and manifold excluding backplate.
  - Refer to the technical specifications section

### INSTALLATION

ONE

Ensure all components are clean

TWO

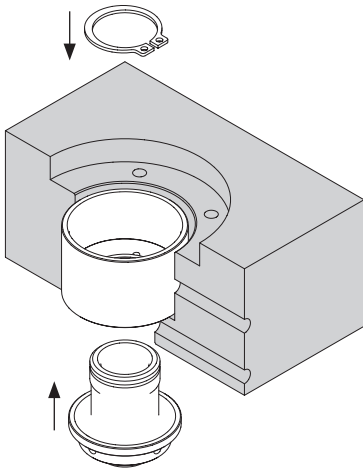


Fit the **Cylinder End Seal** 11 to the **Cylinder** 10

Apply grease to **Cylinder End Seal** 11

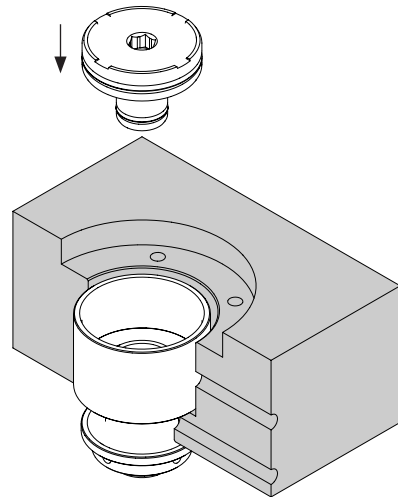
\*Mastip recommends using silicon grease

THREE



Fit the **Cylinder** 10 and **Location Spacer** 12 to the mould backplate and retain using the **Circlip** 9

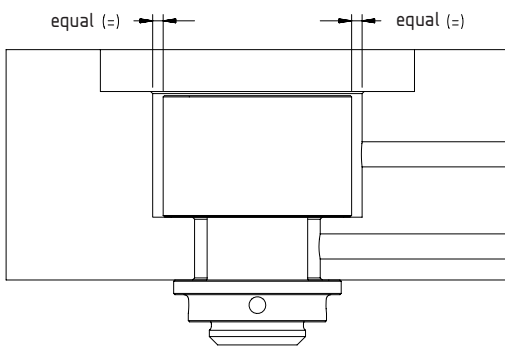
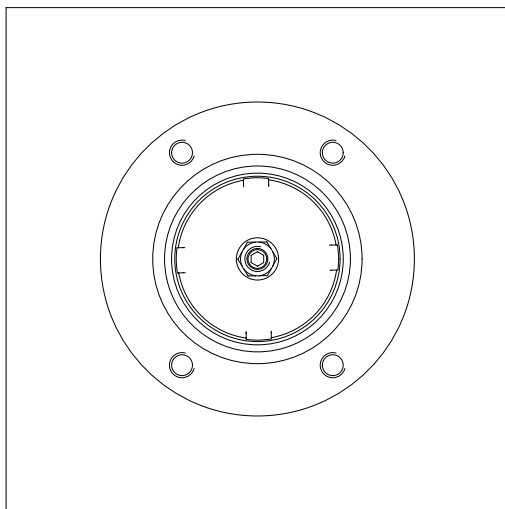
FOUR



Apply grease to the sealing bores of the **Location Spacer** 12 and **Cylinder** 10 and to the pre fitted **Piston Seals** 6 & 8  
Fit **Piston** 7 to the **Cylinder** 10

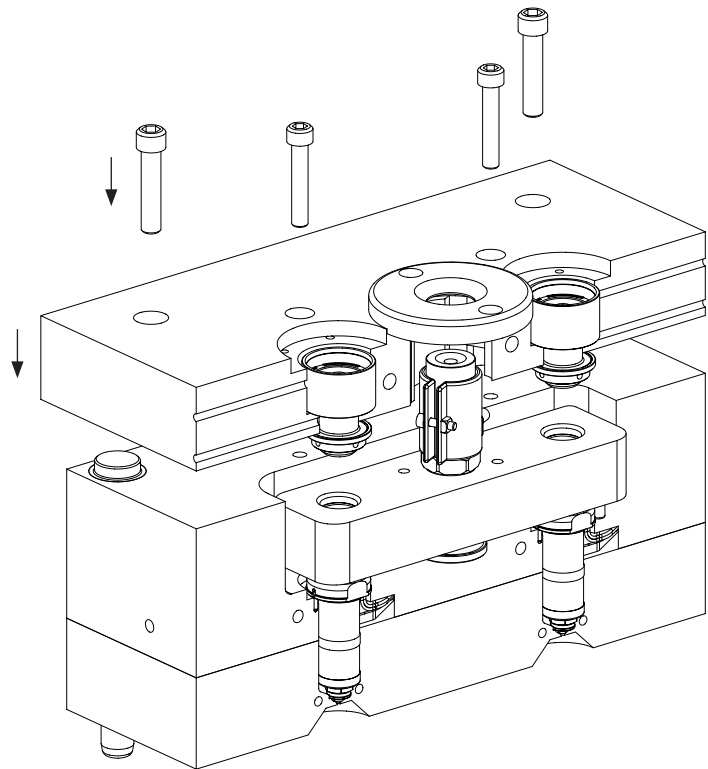
## INSTALLATION CONT.....

FIVE



Centralise **Cylinder Assembly** **A**  
to the Actuator pocket.

SIX

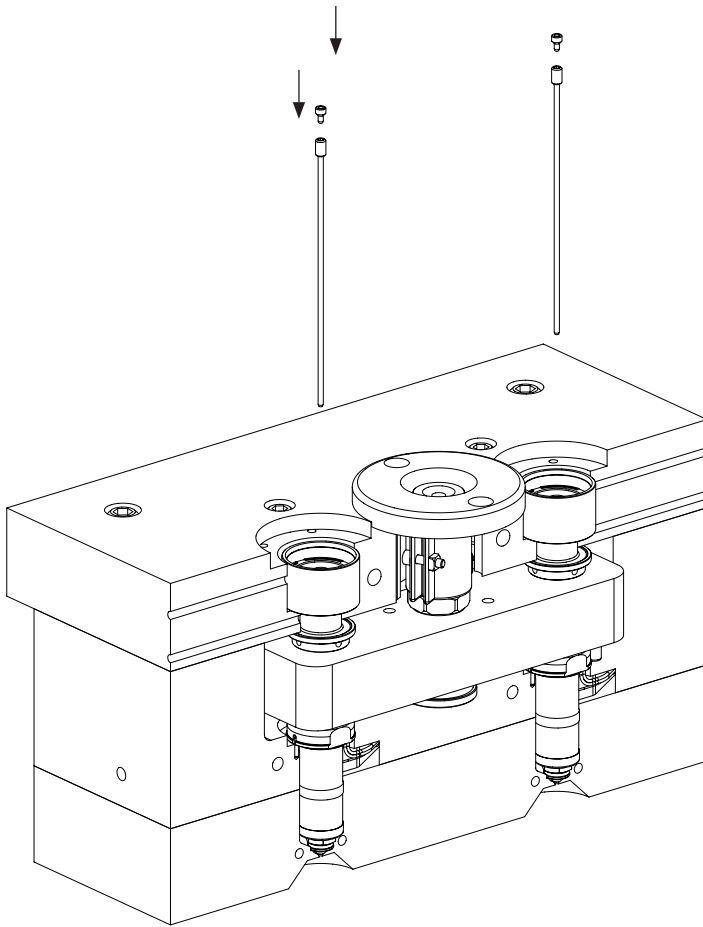


Fit mould backplate to mould and fasten.

**Note:** If backplate location guides start to locate first, then the cylinder assembly should self locate to the manifold. However in some case's it may be necessary to move the cylinder assemblies in the actuator pocket to locate them with the manifold.

## INSTALLATION CONT.....

SEVEN



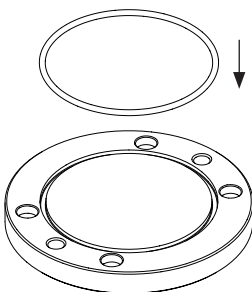
Fit the **Valve Pin 5** to **Piston 7**

To adjust the pin length:  
→ Go to step FOUR in the  
**PIN ADJUSTMENT** section.

or

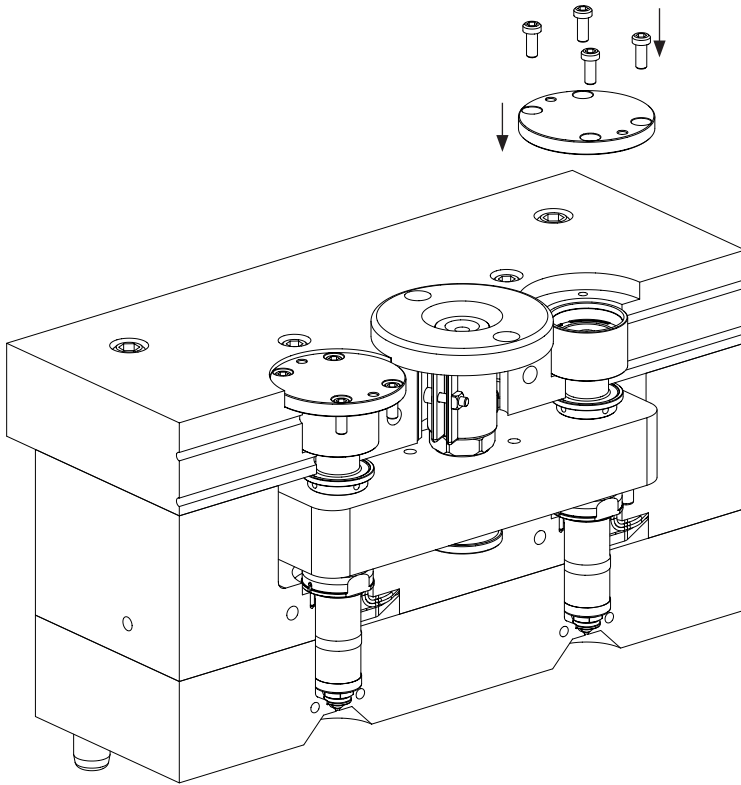
fit the **Locking Screw 4** and  
continue to step EIGHT.

EIGHT



Fit **Blanking Plate Seal 3** to **Blanking Plate 2**

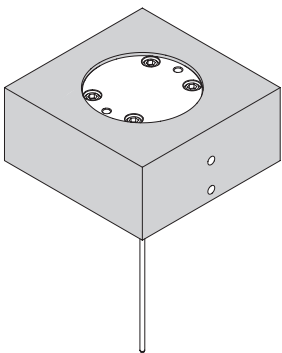
NINE



Fit **Blanking Plate 2** to the mould backplate and fasten using **Blanking Plate Screws 1**

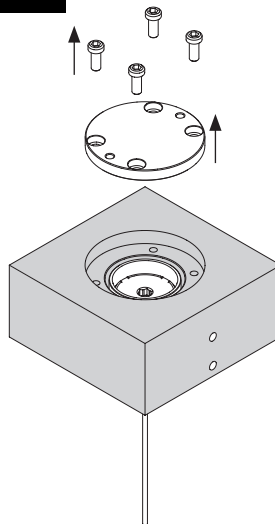
## PIN ADJUSTMENT

ONE



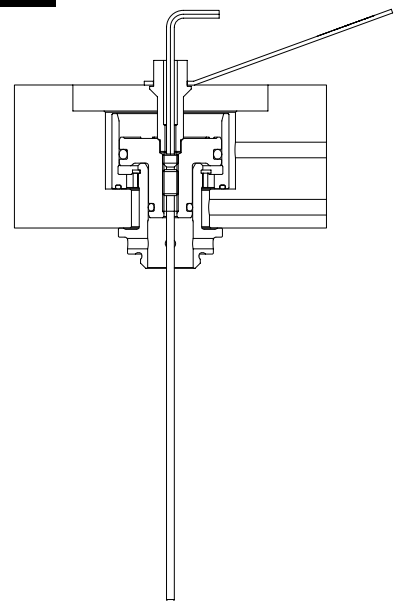
Make sure piston is fully forward and ensure no air is connected to the system

TWO



Remove **Blanking Plate Screws 1** and remove **Blanking Plate 2** from the mould backplate

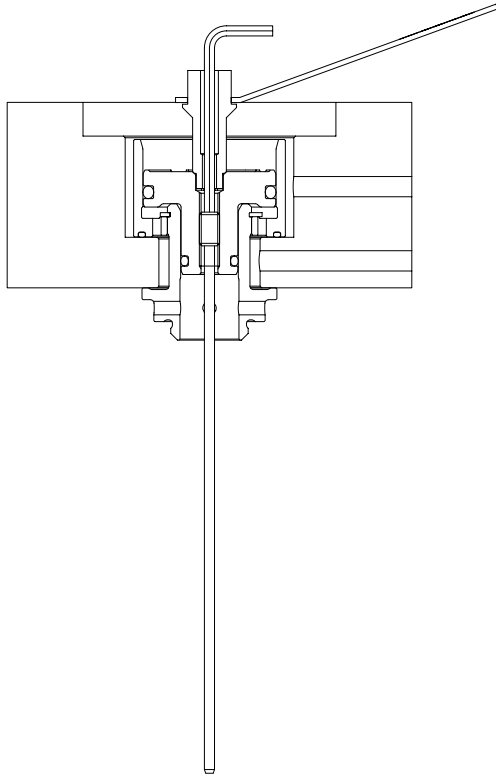
THREE



Insert tube spanner into the piston  
Insert a 3.0mm hex key into the **Locking Screw 4** and remove

## PIN ADJUSTMENT CONT...

FOUR



Re-insert the hex key to adjust pin to correct position.

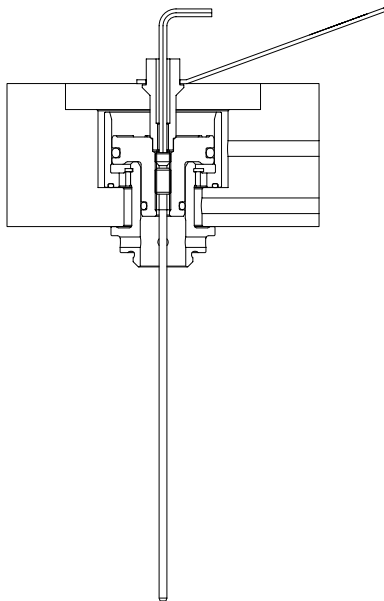
**a. For adjusting a new installation:**

- i. The pin length can be set cold by measuring from the front with a depth micrometer calculating the allowance for expansion.

**b. For adjusting an existing installation:**

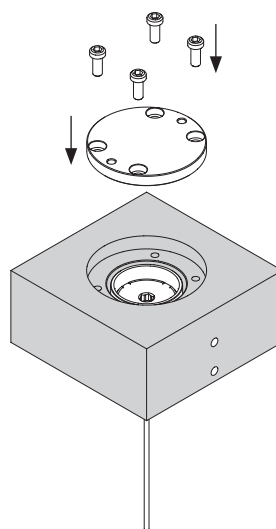
- i. The nozzle to be adjusted will be heated to the minimum melt temperature of the plastic material
- ii. While pushing the piston forward from the rear adjust the valve pin forward until the piston just begins to move and then back off 1/8 of a turn.

FIVE



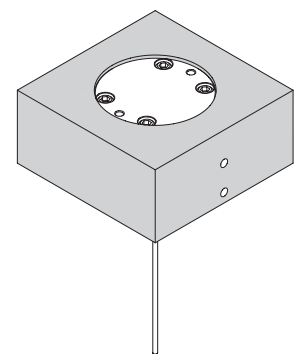
Insert and tighten **Locking Screw 4**

SIX



Fit **Blanking Plate 2**  
and fasten with **Blanking  
Plate Screws 1**

SEVEN



Pin adjustment is COMPLETE

## Pin Details

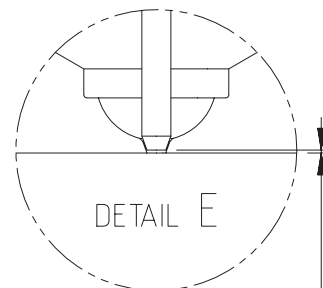
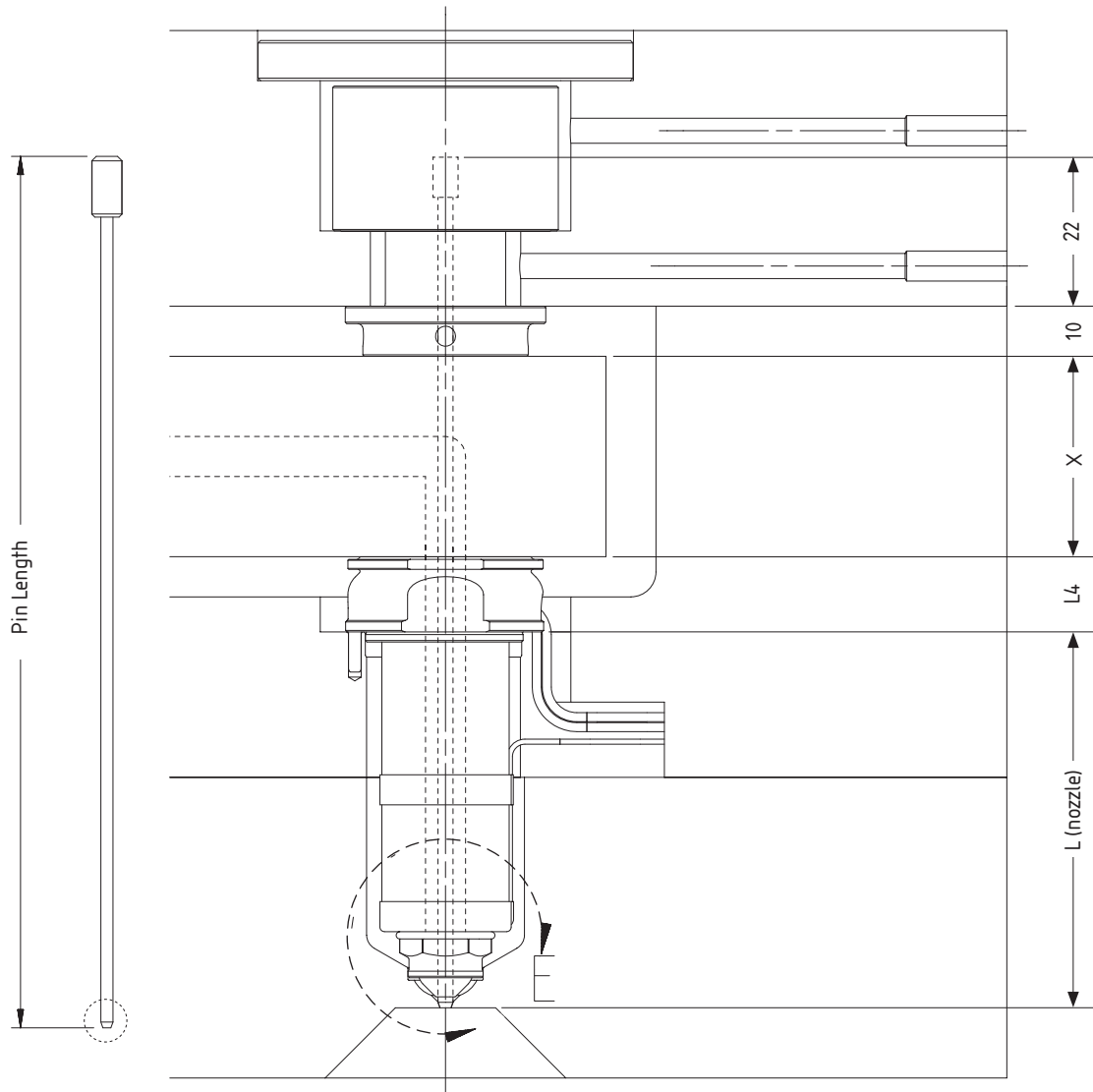
**Caution:** The gap between the gate and the pin in cold state is critical. If the gap is too large there will be a poor gate vestige and drooling from the nozzle may occur. If the gap is too small, the pin can strike the gate and may decrease the gate life.

To calculate pin expansion use the following equation:

$$E = (10/2 + X + L4/2 + L) \times 0.0000132 \times (\text{nozzle temp. } ^\circ\text{C} - \text{mould temp. } ^\circ\text{C})$$

To calculate final pin length use the following equation:

$$\text{Pin Length} = 22 + 10 + X + L4 + L$$



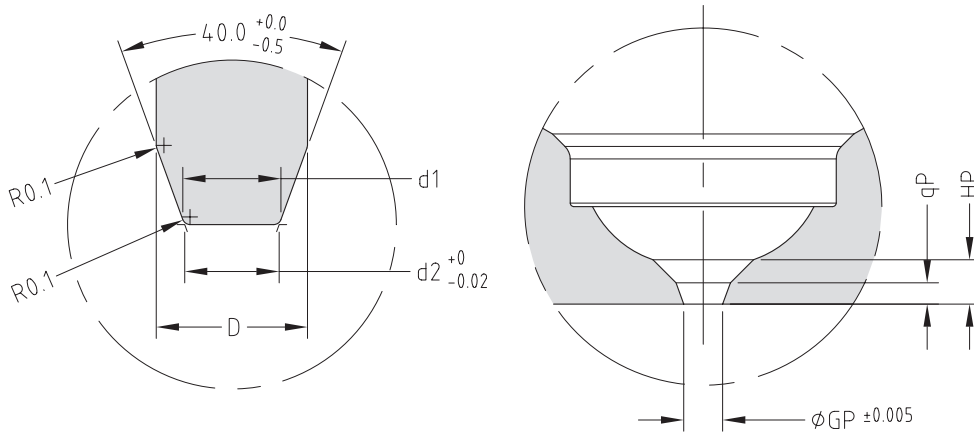
expansion allowed when cold

## Taper Valve Gate

The pin end is shaped to prevent damage to the leading edge and subsequent flashing around the gate.

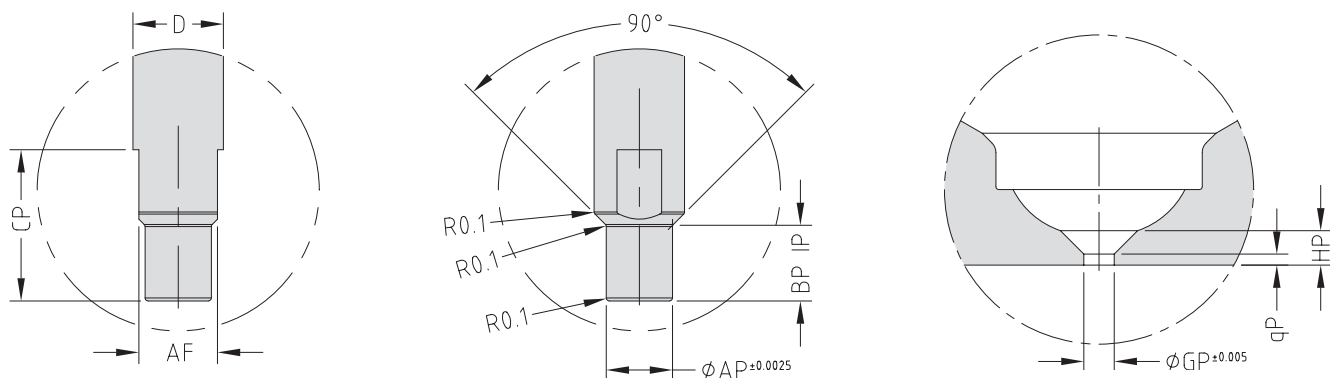
The pin will form a 0.1mm deep dimple on the part.

Description	D	d1	d2	AT	aT	HT
MVG40 - 2.0 x 250	2.0	1.3	1.25	1.3	0.8	1.0
MVG40 - 2.5 x 250	2.5	1.8	1.75	1.8	1.0	2.0
MVG40 - 3.0 x 250	3.0	2.2	2.15	2.2	1.2	2.5
MVG40 - 5.0 x 350	5.0	3.5	3.45	3.5	2.0	3.0



## Parallel Valve Gate

Description	D	AP	BP	AF	CP	GP	qP	HP
MVG40 - 2.0 x 250	2.0	1.292	2.0	1.6	5	1.305	0.5	1.0
MVG40 - 2.5 x 250	2.5	1.792	2.0	2.1	5	1.805	0.7	2.0
MVG40 - 3.0 x 250	3.0	2.192	2.0	2.6	5	2.205	0.8	2.5
MVG40 - 5.0 x 350	5.0	3.492	2.5	4.4	8	3.505	1.3	3.0



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