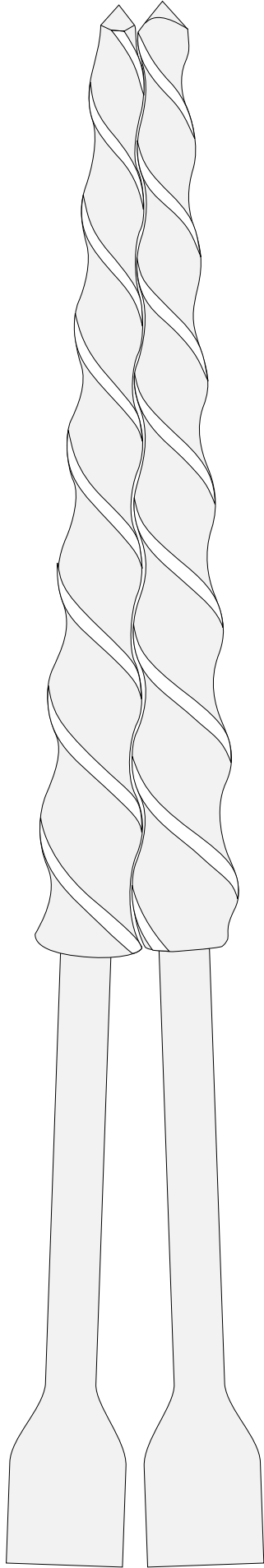


MICRO COMPACT DRILL



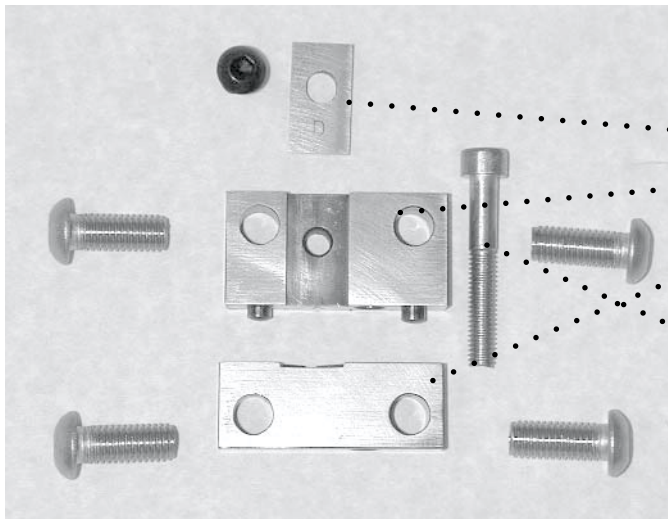
Accessories

Film Extrusion Attachment

The film extrusion attachment is designed to facilitate the production of 12mm wide film (tape) with the MicroCompounder (MC). This accessory consists of two parts: the film die and the take up unit.

The film die is bolted directly to the front face of the MicroCompounder just over the exit port. The compact size of the die allows for direct heating from the MC.

The take up system is mounted directly to the retaining posts of the MicroCompounder. This compact design allows for easy alignment of the take up roll with the exit slit of the die and for movement of the assemble unit while maintaining the alignment. The take up roll is fitted with intake and outlet for a water line to cool the section of the roll that comes in contact with the molten polymer.



The die is made of three sections. These sections can be easily disassembled for clean up.

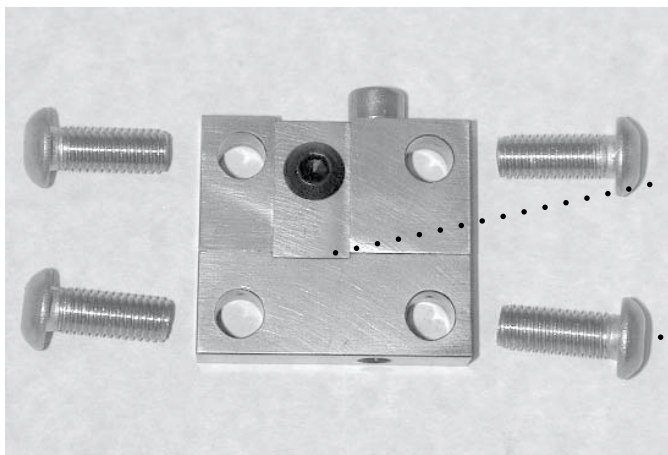
Slit gate

Upper section

Lower section

Assemble the upper and lower section using the long M6 bolt provided.

NOTE: The film die is made of hardened D2 steel. It will rust if left unprotected in a moist environment for a short period of time. Protect it with a light coating of light machine oil (for example WD-40) if it will be left unused for more than one day.

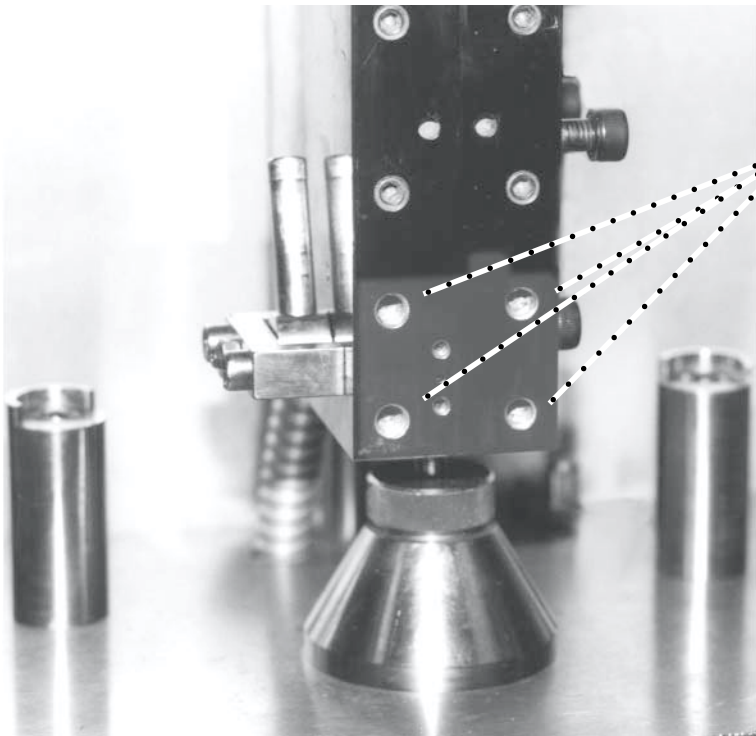


Attach the slit gate using the short black screw provided.

Note that the rounded corner of the slit gate must face the inside bottom position.

The thickness of the slit can be pre-adjusted at this point. Final adjustment should be made when the die is at operating temperature.

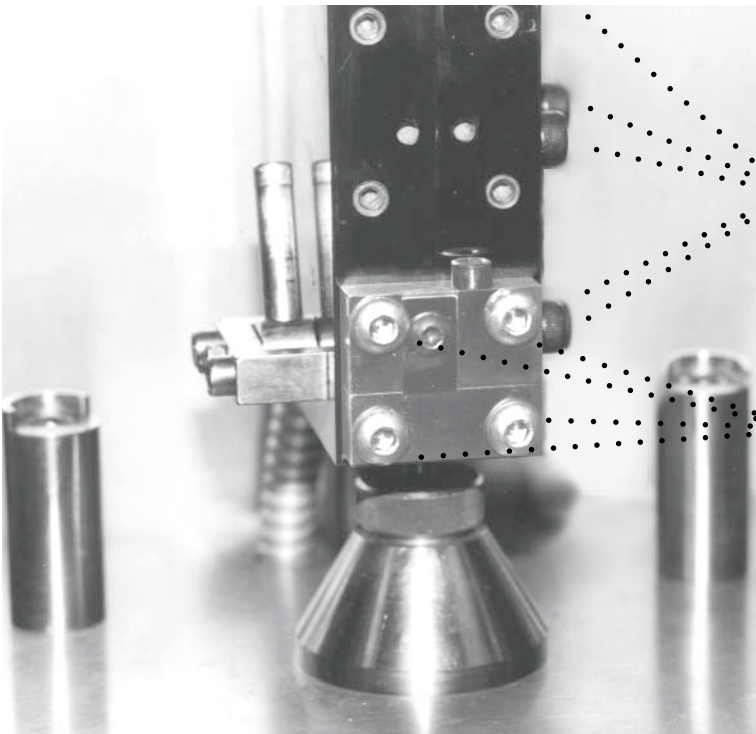
The die is mounted to the barrel using the four large M8 button head screws.



To attach the film die to the barrel, remove the lower 4 set screws that protect the cartridge heaters.

Make sure that the surface of the barrel has been scraped clean of any residues that would prevent the film die from making good contact with the barrel.

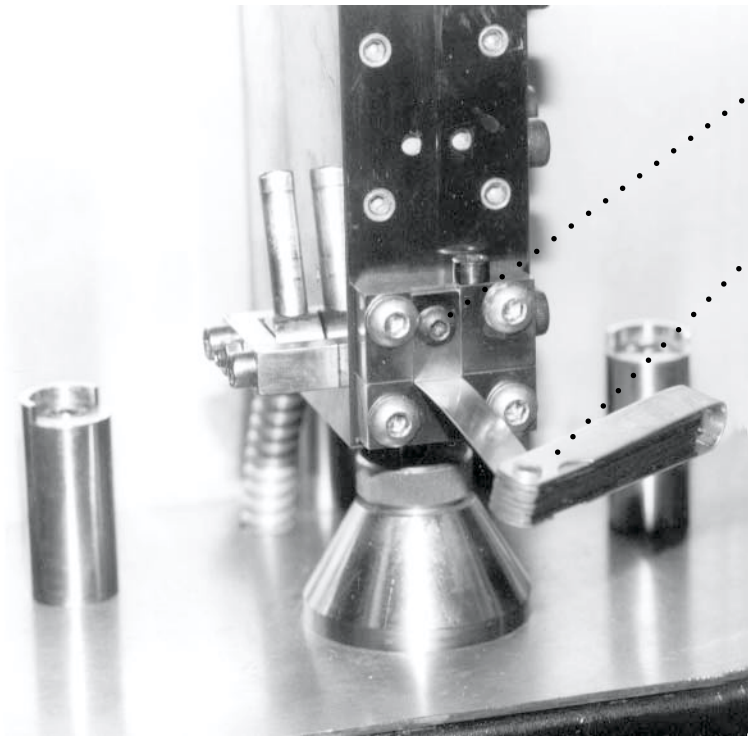
Close the barrel and attach the die to it using the button head screws provided. Do not tighten until the barrel is at the operating temperature.



Heat the barrel to the desired operating temperature.

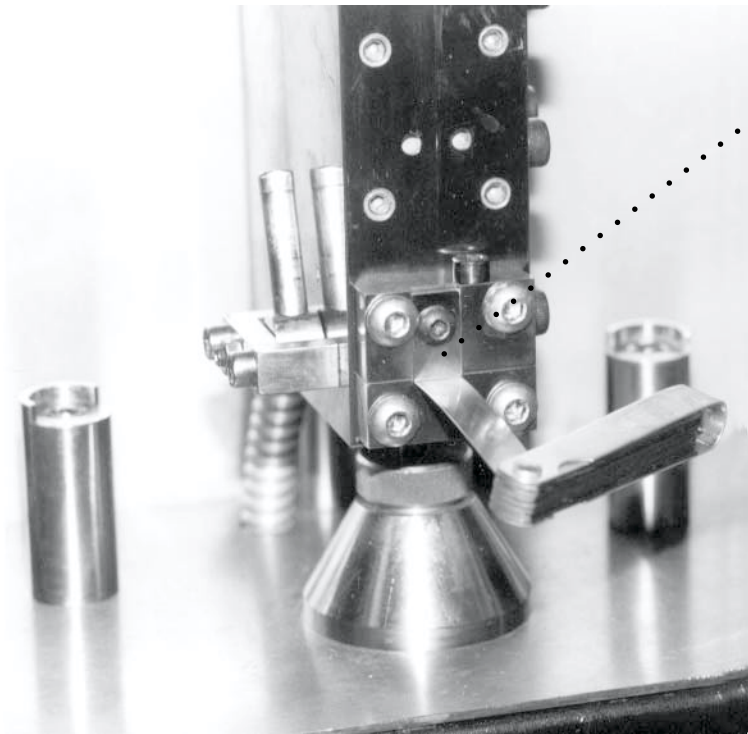
Tightened the barrel screws to the specified torque.

Tighten the screws for the die.

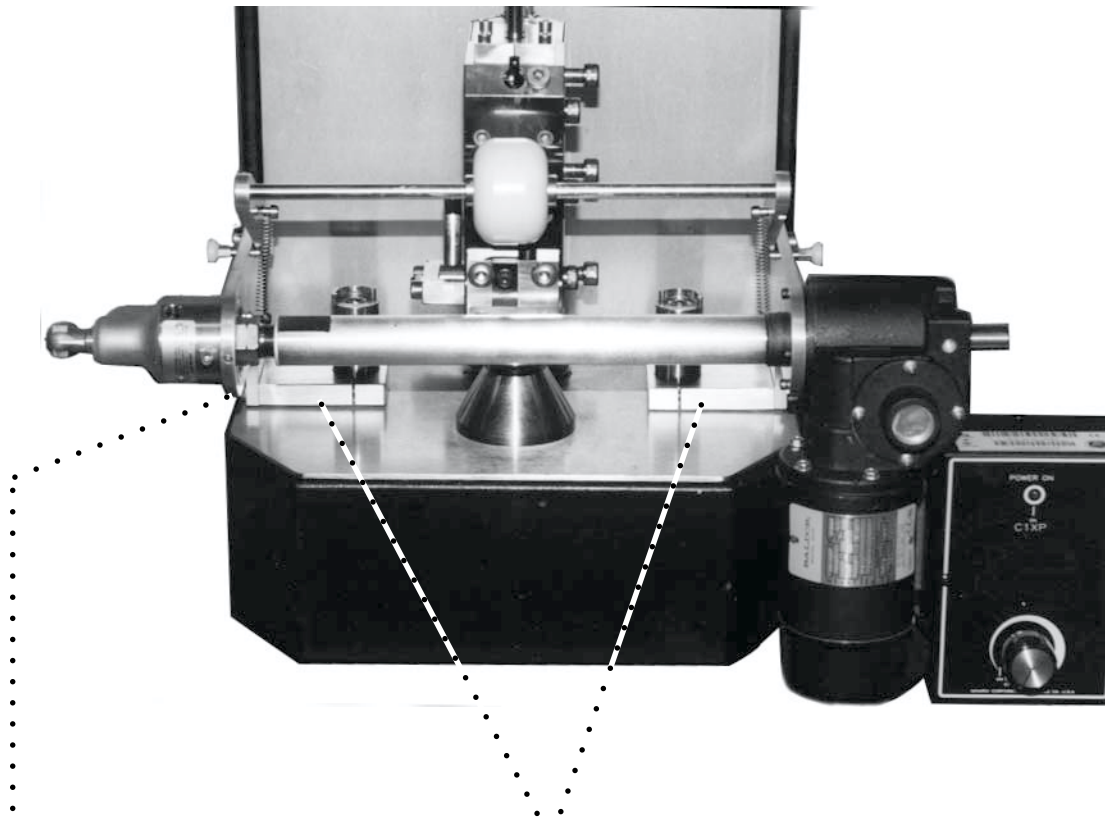


Adjust the thickness of the slit by
loosening the adjustment screw.

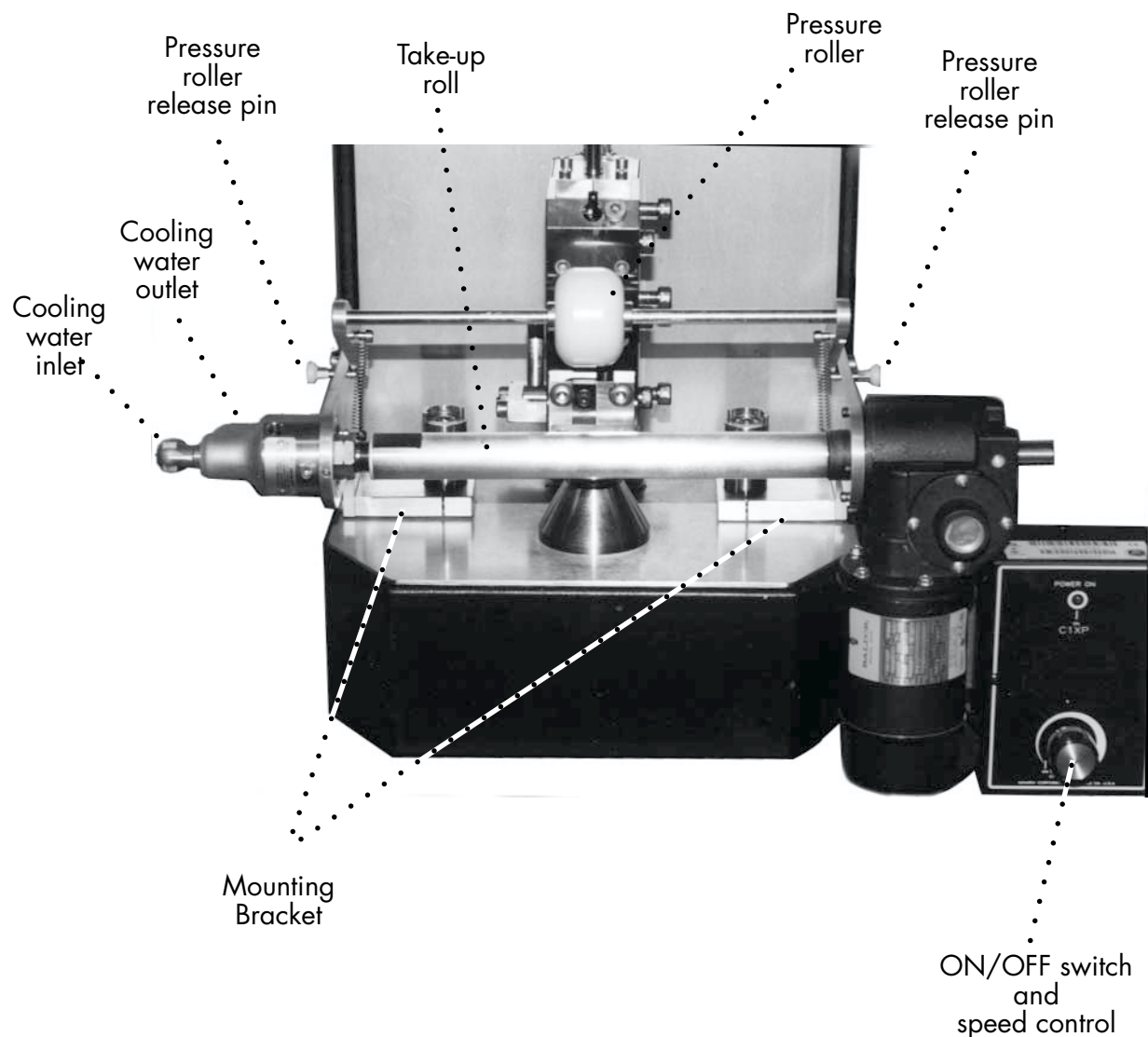
Inserting a blade of the desired thick-
ness from the thickness gauge into the
slit.



Push down on the thickness gate while
retightening the adjustment screw.



- Install the chill roll by sliding the holding brackets over the retaining post of the MicroCompunder. The brackets can be adjusted up or down in order to align the top surface of the chill roll with the exit slit of the film die.
- Tighten the screws on the side of the bracket to lock the assembly in position.



To extrude the film, turn the chilled roll on and set the speed to the middle of the range.

Set the MicroCompounder speed to 10-40 RPM.

Turn the flow director valve on the MicroCompounder to the front, pick up the extruded film with tweezers and guide it over the take-up roll.

Lower the pressure roller over the film by releasing the lock pins.

Adjust the roller and/or MicroCompounder speeds to produce the desired film. Be aware that as the barrel empties, the extrusion speed will diminish even if the screws are moving at a constant RPM.

It might be necessary to cool the take-up roll when extruding high melting point polymers or when the film die is used in conjunction with the continuous extrusion system. In such cases just attach a cold water supply to the water inlet. Drain the ware outlet to the appropriate location. Only a very small water flow rate is needed to maintain the take-up roll at room temperature.

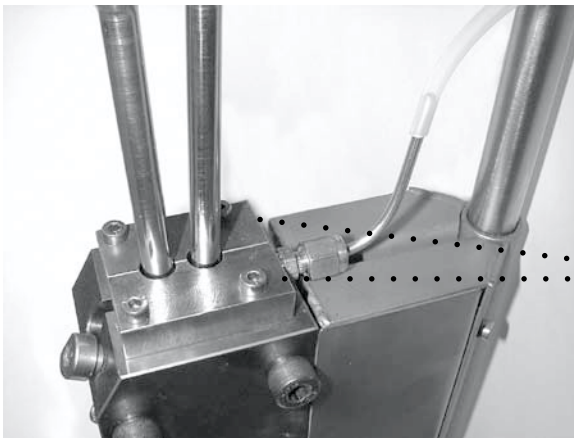


Film being extruded using the film attachment. The optional continuous extrusion attachment is also shown in this picture.

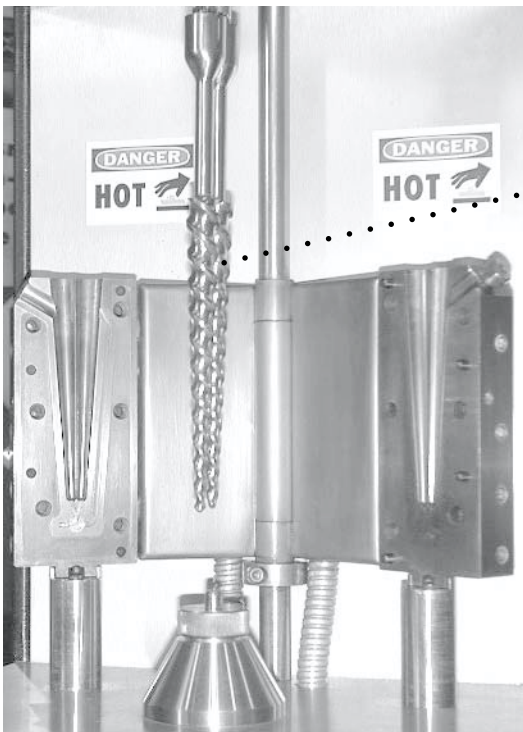
Continuous Extrusion Attachment

This accessory allows the continuous feeding of material into the MicroCompounder. It can also help load into the compounder some sticky powders that can be particularly hard to feed with the small hopper.

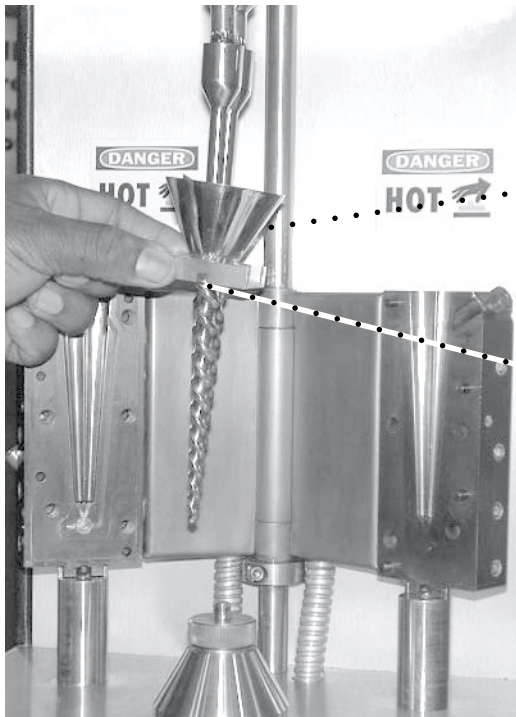
The accessory consists of three parts; a pair of screws with longer flights and the top feeding funnel.



To install the accessory you must first remove the caps that are currently installed on top of the barrel.

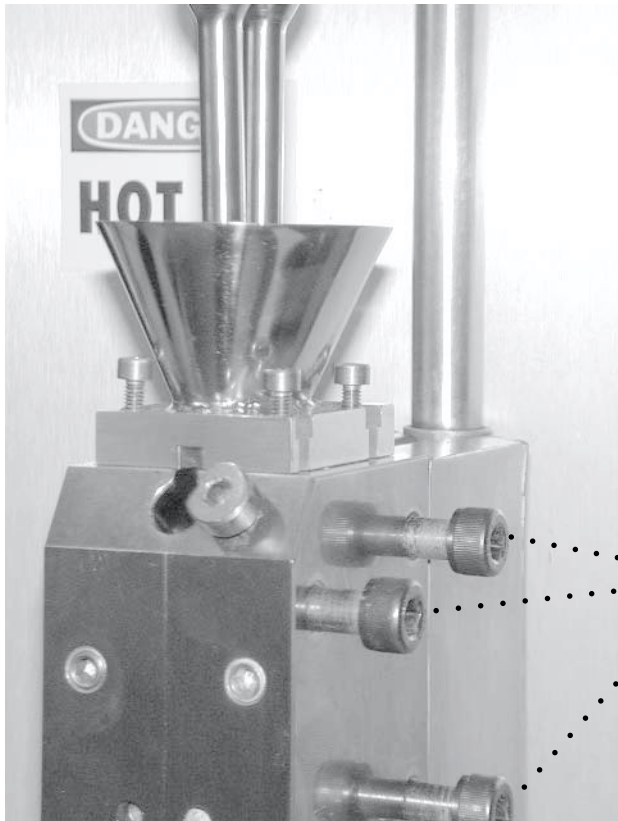


Remove the normal screws from the machine and install the new, longer screws.

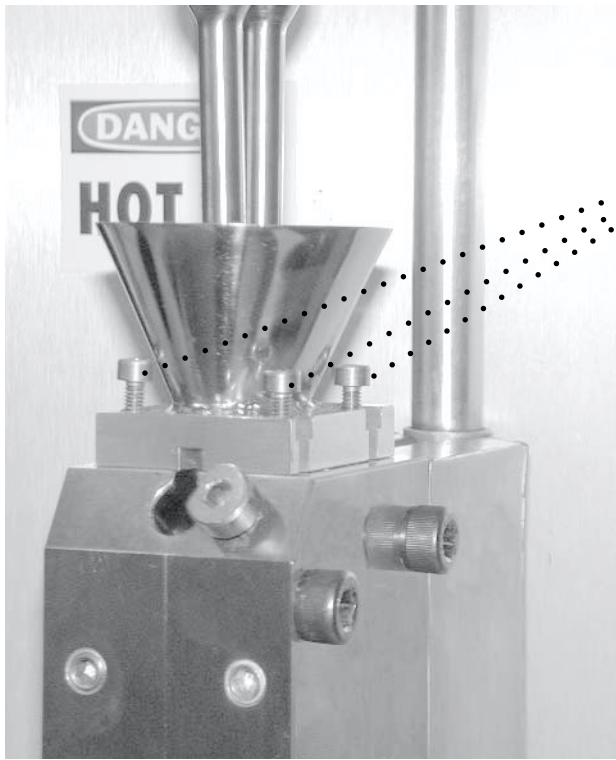


Split the funnel over the screws all the way above the barrel.

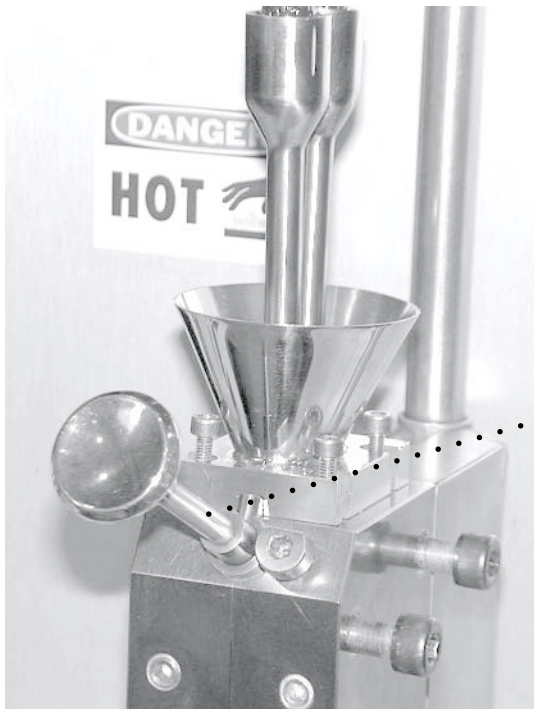
Note the notch on the bottom of the base of the funnel and make sure it is pointing towards the front of the barrel.



Close the barrel and tighten the locking screws. As with the normal mixing screws, lift the new mixing screws while tightening the locking screws to prevent binding.



Attach the feed funnel using the 4 new screws that came packed with the accessory.



Install the plug in the normal feeding port to keep the polymer in the barrel when feeding from the top.

Pellets or powders can be fed into the barrel using this attachment. Some powders should be added slowly into the funnel and allow the machine to feed the powder into the barrel. If the funnel is filled with a sticky powder, it might melt before being feed into the barrel and stick to the sides of the funnel creating waste.

WARNING

WARNING

WARNING

WARNING

Do **NOT** use any metal utensils or your fingers to try to push any material down into the barrel. Metal utensils can be caught between the screws and damage the machine. Your fingers will be destroyed thus damaging the rest of your life.

WARNING

WARNING

WARNING

WARNING

Use only soft plastic or soft wood utensils if you need to push material down the funnel into the barrel.

With this attachment, the instrument can be used in two modes:

Batch mode: this is like the normal operation of the MicroCompounder except that the material is fed from the top instead of using the normal feeding tools. Just add 5cc of material to the funnel and keep the valve in the recirculation position. Mix the material for the time desired and then turn the valve to extrude to collect the material as usual.

Continuous mode: In this case, just leave the valve in the extrusion position. Keep feeding material to the funnel as needed to maintain a steady extrusion rate. This mode is perfect for continuous extrusion of homogeneous materials.

Note that the L/D of the screws is very small and the material will spend a very short time being mixed in a single pass. The ideal way to continuously compound material with this setup is to starve feed the compounder. Feed the materials to be blended very slowly (a few pellets at a time) and run the compounder at 200 RPM. The small amount material that goes into the barrel will spend more time being mixed before being extruded if the barrel is not full.

Note: we are looking for a feeding unit to automate this task.

Inert Gas Purge Cap

This cap comes standard on all newer MicroCompounders. It will allow purging the small amount of gas trapped at the top of the barrel with an inert gas for the processing of air sensitive materials. Simply connect the small length of Teflon® tubing that was provided in the accessories box to the stainless steel tube on the cap as shown on the picture below. Connect the other end of the Teflon® tube to your inert gas supply.

Only a very small flow of gas is needed for proper operation since the volume of gas to be purged is less than one cubic centimeter. A large flow of gas will cool the top of the barrel making the operation of the MicroCompounder less than ideal.

