# FusionX

## USER MANUAL

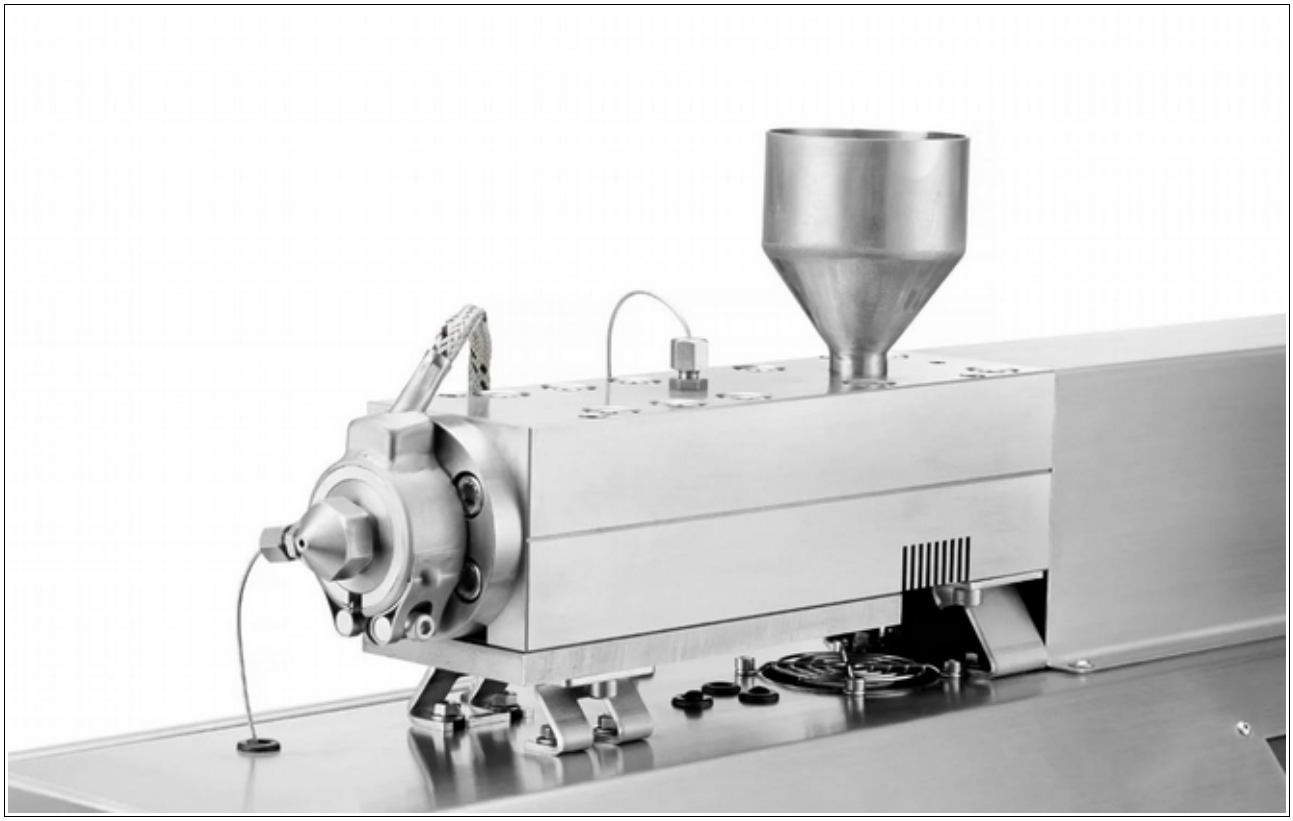
# Introduction

The Noztek fusionX extruder is one of the most advanced desktop single screw mixing extruders available. After a meticulous three-year development process, it showcases exceptional engineering precision, making it the most sophisticated extruder Noztek has produced.

The fusionX extruder performs material operations such as mixing, compression, and shearing using multi-sized cutting inserts that are easily replaceable. It is ideal for extruding bio-polymers, nano-composites, and pharmaceuticals. Powered by a robust 50 RPM, 16 Nm DC motor, it offers the necessary torque and speed for effective blending of composite materials in a molten state.

Despite its compact desktop design, the extruder matches the capabilities of much larger machines. It features a user-friendly touch screen control panel for easy operation. Extrusion data can be monitored and exported effortlessly with a click, thanks to unique software.

Constructed with high-quality stainless steel, the fusionX prevents material contamination. Its split barrel design allows for quick and easy cleaning, with tools provided for dismantling. The innovative design includes a mixing screw that shears material against up to three staggered interchangeable blending blades, ensuring optimal blending and homogeneity of the processed materials.



# FuxionX extruder Manual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# Warranty

We guarantee outstanding quality for our products and services.
Customers who purchase Noztek-manufactured equipment for professional use are guaranteed that they will be free from defects in workmanship and materials for 1 year from date of shipment. If your machine is found to be faulty, we will repair or replace the machine. The warranty and functional guarantee does not cover damages caused by wear and tear or improper use.

**TO INSURE THAT YOUR WARRANTY IS HELD IN EFFECT, PROPER OPERATION PROCEDURES MUST BE OBSERVED.**
**NOTE: READ THE SAFETY PRECAUTIONS BEFORE OPERATING THIS MACHINE.**

For a full breakdown please read our Limitations of Warranty Cover below.

**Limitations of Warranty Cover:**

- You must own the machine
- The original invoice is decisive as this is your warranty claim (please keep a copy of this)
- Repair or replacement of machine will be determined by Noztek
- Warranty only covers manufacturing or material defects

**Warranty does not cover:**

- Incorrect use of machine /damage due to misuse
- Damage from force or fall
- Foreign objects inside of machine
- Water damage or dirt
- User failing to follow proper usage instructions
- Normal wear and tear in machine's lifespan
- Unauthorized repairs by consumer

While we stand by the quality of our products, it's important to note that our liability is limited. This warranty represents your sole remedy, and there are no other expressed or implied warranties.
In the rare instance of a covered defect, we offer remedies such as repair or replacement after assessing the reported fault.
Noztek have the right to reject any warranty claim if we feel the request falls outside of our limitations

**Filing a Claim:**
Need assistance? Our customer support team is ready to help. Refer to the contact information provided in this manual to start the claims process.

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# Safety

**Caution: Injury Risk**

This equipment contains moving parts. To prevent injury, keep hands, fingers, and other body parts clear during operation. Avoid wearing loose clothing or jewellery that may become entangled in moving components. Tie back long hair and secure loose items before using the equipment. Always follow safety instructions provided in the user manual.

**Caution: Hot Surface**

This equipment can reach high temperatures during operation. Avoid direct contact with exposed surfaces to prevent the risk of burns. Allow the equipment to cool before handling or performing maintenance. Exercise caution and keep out of reach of children. Follow all safety guidelines provided in the user manual.

**Caution: High Voltage Zone**

This equipment contains high-voltage components. To avoid the risk of electrical shock:

Do not use liquids near the machine: Keep all liquids, including water, away from the equipment. Liquids can conduct electricity and increase the risk of electrical shock.

Do not modify internal wiring: Modifying internal wiring or electronic components poses a serious hazard. Only authorized personnel should perform any maintenance or modifications.

**Caution: Material guidelines**

Ensure familiarity with the material being extruded, including melting temperatures and ventilation requirements of the space. Failure to do so may lead to damage to the machine and pose health risks to the consumer

## SAFETY GUIDELINES

• Before operating, ensure you have a thorough understanding of the equipment. Carefully review the provided instruction manual for complete guidance.

• Understand the proper, safe usage and limitations of the equipment.

• Never use this equipment for any purpose other than its intended use.

• Do not modify the equipment in any way.

• Do not make adjustments or perform maintenance while the system is in operation or energized.

• Non-Flammable Cleaning: Refrain from cleaning the equipment with flammable solvents.

• Extruder Vent Precautions:
Avoid probing into the barrel pallet feed section while the machine is running. Never use a metal probe in the barrel pallet feed section; a wooden probe is recommended.

• Personal Protective Gear:
Wear a face shield and heat insulated gloves while operating or being near the extruder during operation. These protective items are also necessary when adjusting the die or cleaning the screw. The extruder temperatures are extremely high, and not using protective gear may lead to serious injury.

• Hopper Installation:
The feed hopper must be installed on the extruder feed section at all times when in operation.

• Material Removal Safety:
Never put your hands into the feed section or vent to remove material.

• Motor Activation:
Only switch on the motor when the recommended temperature has been reached.

# Product Specification Sheet

**1. Product Information:**
• Product Name/Model: Noztek FusionX extruder
• Brand/Manufacturer: Noztek
• Serial Number: See invoice
• Date of Manufacture: 2023

**2. General Description:**
The Noztek fusionX extruder is one of the most advanced desktop single screw mixing extruders available. After a meticulous three-year development process, it showcases exceptional engineering precision, making it the most sophisticated extruder Noztek has produced.

The fusionX extruder performs material operations such as mixing, compression, and shearing using multi-sized cutting inserts that are easily replaceable. It is ideal for extruding bio-polymers, nano-composites, and pharmaceuticals.

**3. Technical Specifications:**
• Voltage Requirements: 220VC or 110VC.
• Power Rating: 10A.
• Frequency (Hz): 50 Hz or 60 Hz.
• Operating Temperature Range: -40°C to 85°C (-40°F to 185°F)
• Dimensions (including weight and size): L: 68 cm x W: 24 cm x 33 cm. 25 KG.
• Material Composition: Stainless steel.
• Barrel and Screw: Stainless steel
• Color/Finish: Brushes stainless steel
• Motor: 50RPM, 162 kg-cm of torque

**4. Key Features:**

**Blending blades:**
The fusionX extruder achieves high dispersive mixing with three sets of hardened and tempered stainless steel blending blades that generate staged shear. Different blade sizes can be sequentially inserted to adjust the process. Typically, customers start with a 10mm blade, followed by a 3mm blade, and finish with a 1mm blade for high shear rates. However, the blades can be mixed and matched according to the material being extruded, offering flexibility in the blending process.

These durable blades can be arranged in various configurations within the barrel's six slots, allowing for customization. They also act as a counterbalance to keep the screw centered, ensuring consistent material circulation and uniform mixing.

**Noztek controller software integration:**
The Noztek FusionX extruder comes complete with Noztek's proprietary integrated software, seamlessly connecting to a computer to provide real-time performance monitoring, complete with detailed temperature and speed charts.

**Manual Control over Temperature and RPM via touchscreen interface**
The Noztek FusionX extruder provides complete manual control of your extruder through its intuitive touch screen interface. This allows you to independently set temperatures for the two heaters and adjust the motor RPM up to 50 RPM. These capabilities enable precise adjustments, accommodating a variety of materials and achieving optimal extrusion conditions. Our in-house developed PCB and algorithms ensure stability by continuously monitoring and adjusting the temperature and motor speed. This guarantees a consistent and accurate level throughout the entire extrusion process.

**Program Memory:**
The system retains the most recently used target temperature, speed settings, and timer configurations even after a system restart.

**Warm-Up Function:**
The warm-up feature is engineered to ensure the barrel reaches optimal operating temperature within 35 minutes. This minimizes the risk of unmelted materials obstructing the motor, thereby preventing potential damage to the motor or the machine.

**Emergency Shutdown Capability:**
In cases of urgency, the system offers a rapid electrical shutdown mechanism for immediate cessation of all operations.

**Motor Block Management:**
Should the motor face any operational hindrance, the system promptly issues a notification message and halts the motor to prevent further complications.

**Sensor Anomaly Detection:**
The system incorporates sensor malfunction detection, which promptly communicates deviations from correct temperature readings by issuing a notification message.

**7-Inch TFT Touchscreen Control Panel:**
The machine features a sophisticated 7-inch Thin-Film Transistor (TFT) touchscreen, providing an intuitive and responsive interface for operating and configuring the equipment.

**High Torque 50 RPM Motor:**
The extruder features a robust high-torque motor operating at 50 revolutions per minute (RPM). This high torque capability ensures efficient and consistent filament extrusion even when processing challenging materials or operating under demanding conditions. The motor's power, coupled with its controlled RPM, contributes to the reliability and performance of the Noztek FusionX extruder, making it suitable for a wide range of filament production requirements.

**5. Safety Information:**
• Warnings: See safety sheet
• Recommended Safety Gear: See safety sheet
• Emergency Shutdown Procedures:
In the event of an emergency, firmly press the red mains switch located at the back of the machine. This action will swiftly deactivate the power supply, bringing all ongoing processes to an immediate halt.

**6. Operating Instructions:**
• Step-by-step instructions for safe and proper use of the product: See safety sheet and guide
• Start-up and Shutdown Procedures: See guide
• Control Panel Layout: See guide
• Maintenance and Cleaning Guidelines: See maintenance sheet.

**7. Technical Diagrams:**
• Available upon request.

**8. Performance Data:**
• Heater bands:
Equipped with two distinct, PID algorithm controlled heaters, capable of reaching temperatures up to 500°C.
• Hopper capacity:
50 gram maximum, 7 gram minimum.
• Extrusion Output Rate:
The Noztek FusionX extruder demonstrates an impressive extrusion capacity, capable of producing approximately 1-2 meters of filament per minute. This translates to an estimated output of 60-120 meters or 300 grams of filament per hour.

**9. Accessories and Included Items:**

• Mains cable
• A-B USB cable
• 2 stainless steel nozzles (1 x 1.75mm diameter and 1 x 3mm diameter)
• Torque wrench
• Hopper
• Hopper weight (Used in the hopper for light powdered materials)
• Chassis cover (for protection when dismantling the barrel)
• Copper slip anti seize grease

Blades:
• 2 sets of 1mm hardened stainless steel blending blades (4 in total)
• 2 sets of 2mm hardened stainless steel blending blades (4 in total)
• 2 sets of 5mm hardened stainless steel blending blades (4 in total)
• 2 sets of 10mm hardened stainless steel blending blades (4 in total)

**10. Warranty Information:**
• See warranty sheet.

**11. Compliance and Certifications:**
• CE

**12. Technical Support and Contact Information:**
• info@noztek.com
• https://noztek.com/contact/
• 44 (0) 203 384 6208

• Noztek Head office
Unit C3 Dolphin Enterprise Centre
Evershed Way
Shoreham
West Sussex
BN43 6QB
ENGLAND

# Set-up Instructions

**1. Unpacking and Placement:**
Caution: Do not plug the machine into the mains or turn it on during set-up. Carefully unpack the machine and accessories. Place the machine on an even, stable surface, ensuring there are no flammable materials nearby as the heater bands can reach temperatures of up to 500°C.

**2. Power Connection:**
Once the initial steps are completed, you can plug in the mains cable into the machine. Before doing so, double-check that the mains voltage (e.g., 220VAC or 110VAC) matches the voltage specified on the machine (refer to the sticker on the machine).

Note: Always follow these set-up instructions meticulously to ensure the safe and effective operation of the machine. If you encounter any issues or have questions, refer to the comprehensive user manual for further guidance.

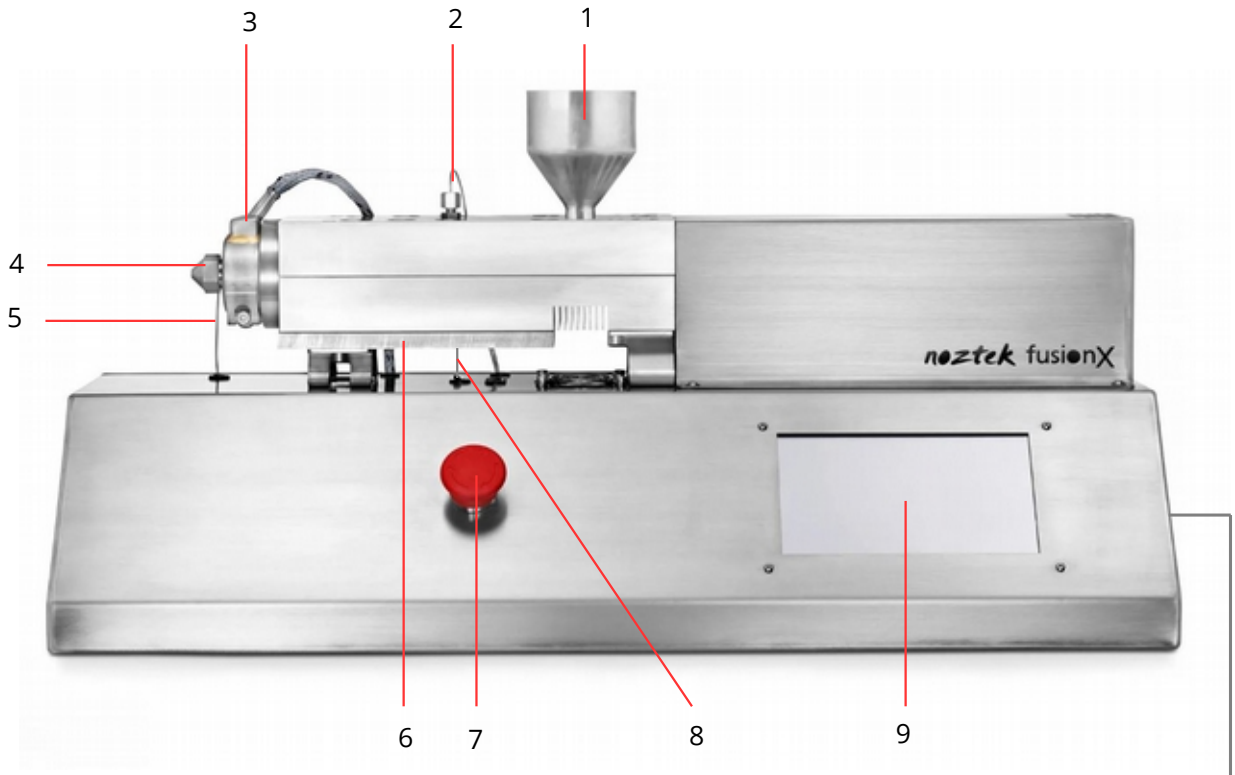
**3 (Optional) USB Connection:**
To utilize this machine with our Noztek controller software, use the provided A-B USB cable. Connect the cable from the back of the machine to your computer. Please note that the controller software is compatible only with Windows machines.

## FusionX layout

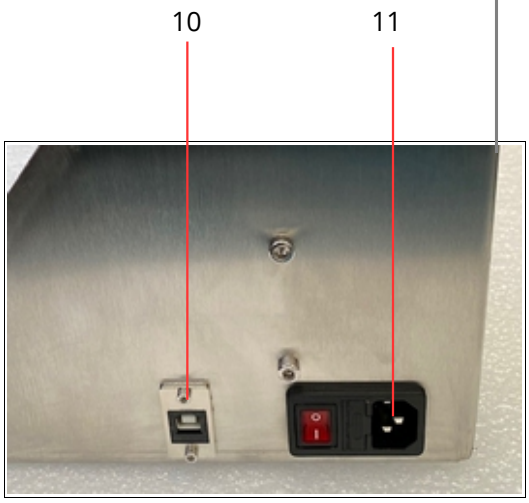
**Important Note:**
Ensure that you acquaint yourself with the proper handling guidelines for the material you are using, particularly its melting point. Neglecting to do so may compromise the functionality and potentially damage the equipment.

Please bear in mind that the quality of the extruded filament is influenced by factors beyond just the operation of the machine. Considerations such as room humidity, temperature, material humidity, and ensuring the correct temperature settings all play crucial roles.

### FusionX main layout overview

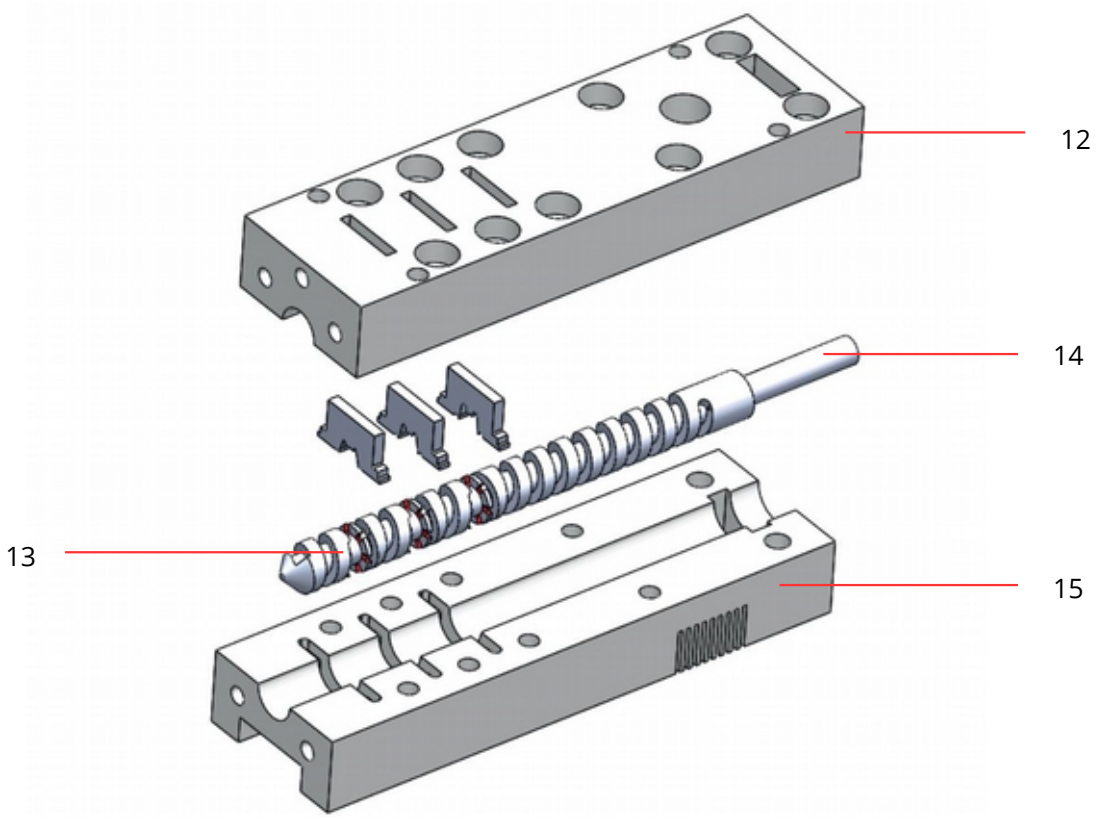



1. Hopper
2. Thermocouple barrel
3. Nozzle heaterband
4. Nozzle
5. Thermocouple nozzle
6. Ceramic block heater
7. Emergency stop switch
8. Ceramic block heater thermocouple
9. 7'' Touch display
10. USB inlet
11. Mains AC voltage inlet and power switch



**FusionX barrel layout overview**

12. Top barrel block
13. Mixing blades (3 sets per barrel)
14. Screw
15. Bottom barrel block
16. The FusionX extruder uses blending blades in sizes of 1mm, 2mm, 3mm, and 10mm. For optimal performance, arrange the blades incrementally, with the smallest size closest to the nozzle and the largest size furthest from the nozzle. This setup ensures a gradual hot melt mixing process, resulting in thoroughly blended material by the time it reaches the nozzle. For materials that require more extensive blending, you can utilize the Noztek Pelletiser to cut the filament, allowing it to be reinserted back into the unit.

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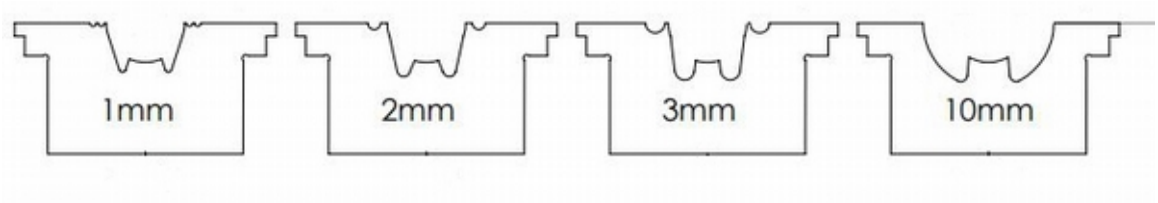
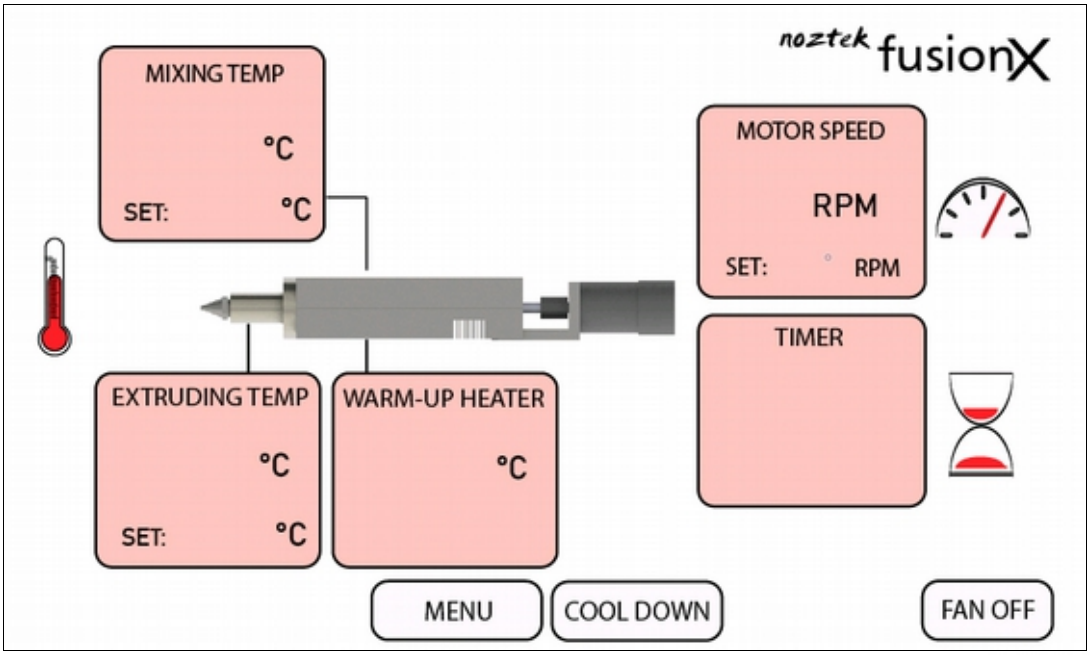


## Operational instruction

**STEP 1. Start up procedure:**
To turn on the machine, use the illuminated mains power switch located at the back (11). In an emergency, pushing the mains power switch (11) or emergency stop switch (7) will shut down the Noztek FusionX completely.

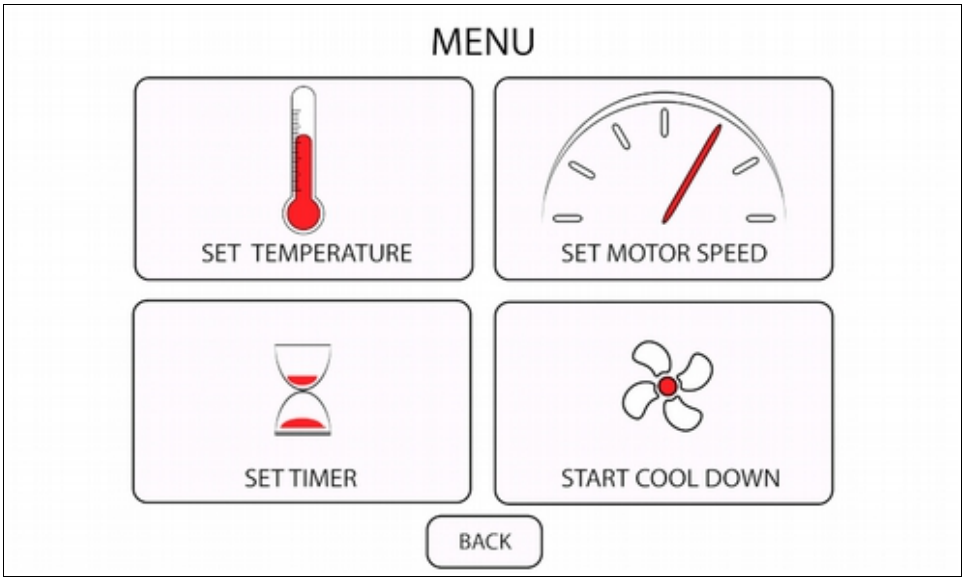
**STEP 2. Touch screen interface and set-up**

**Main Screen Overview:**
The main screen provides comprehensive information about the actual current temperature in Celsius for individual heaters and the motor speed in RPM.
1. The MIXING TEMP button displays the main thermocouple readout of the barrel block. The first value shows the actual reading, while the second value indicates the user-set target.
2. 2. The EXTRUDING TEMP button indicates the nozzle heater temperature. The first value shows the actual reading, while the second value indicates the user-set target.
3. 3. The WARM-UP HEATER button shows the ceramic heater block readout value.
4. 4. The MOTOR SPEED button indicates the motor speed in RPM. The first value shows the actual reading, while the second value indicates the user-set target.
5. 5. The TIMER button allows you to set a timer for the machine's operation duration.
6. 6. Press the MENU button to access the FusionX settings menu.
7. 7. Use the COOLDOWN button to cool down the FusionX after use.
8. 8. The FAN button is used to actively cool the rear of the block during high-temperature settings, preventing clumping in the hopper area.

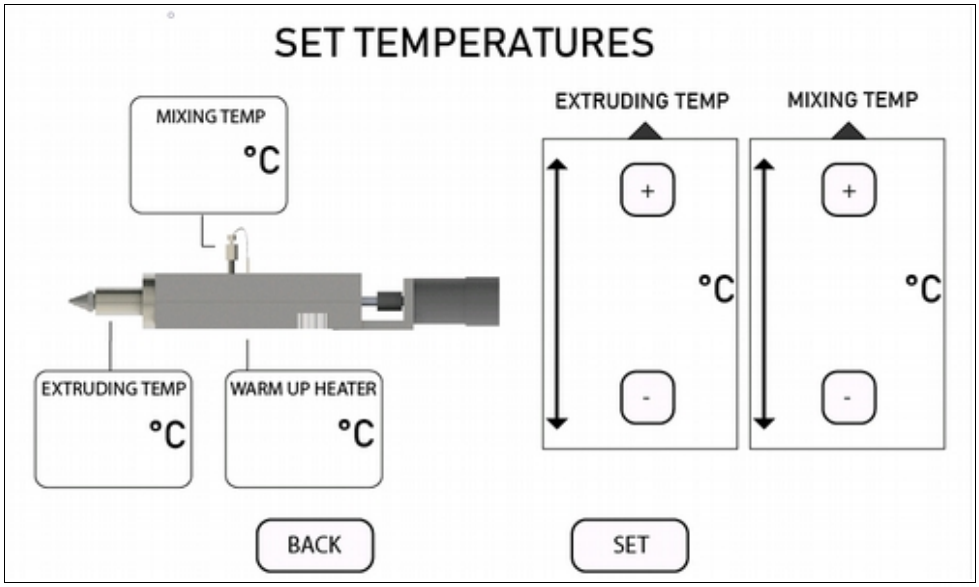


**Menu overview**
Here, you can adjust the settings for the FusionX:

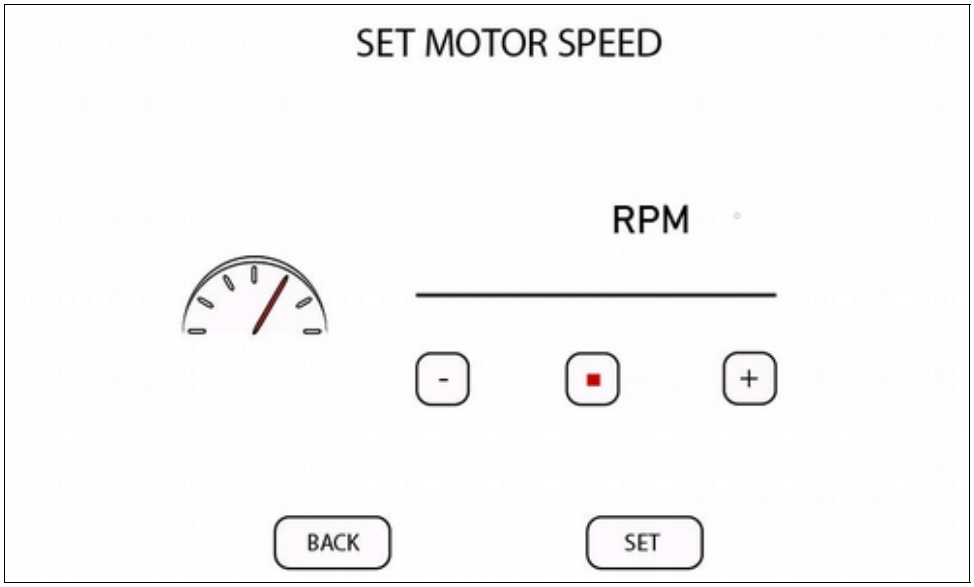
1. To change temperature settings, select the SET TEMPERATURE option.
2. Adjust the motor speed by selecting the SET MOTOR SPEED option.
3. Customize timer settings by choosing SET TIMER (Optional).
4. Initiate cooldown by selecting the START COOL DOWN option. Only use this after operating the machine to cool down the barrel quickly.



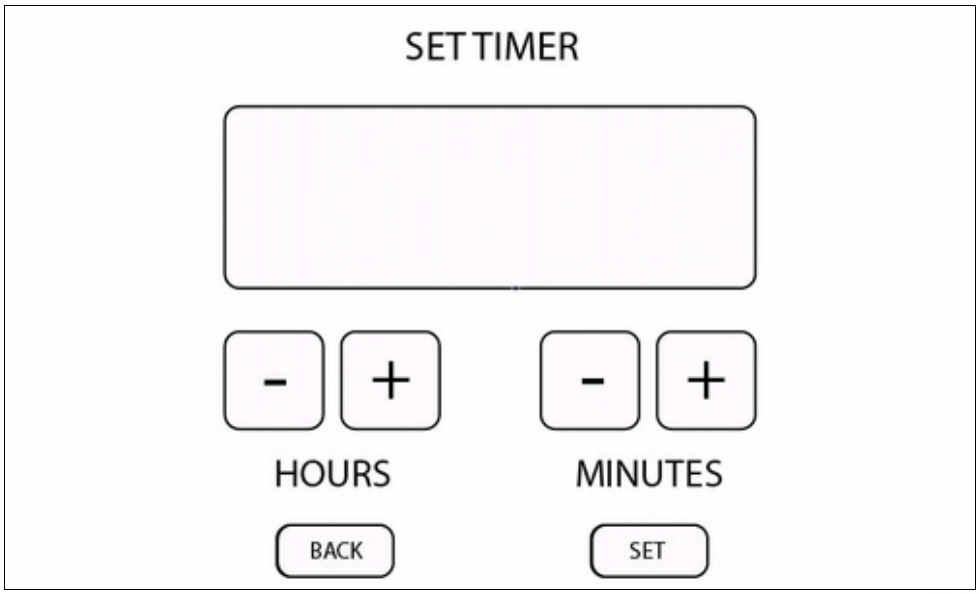

**Temperature settings:**
This page allows you to set the operating temperature values for the FusionX. The EXTRUDING TEMP value controls the nozzle temperature, while the MIXING TEMP value controls the barrel temperature. Use the slider or the + and – buttons to adjust the values. Once you're satisfied, press SET to save them. Then, press BACK to return to the main menu page. The WARM UP HEATER displays the temperature of the ceramic heater block and cannot be adjusted.



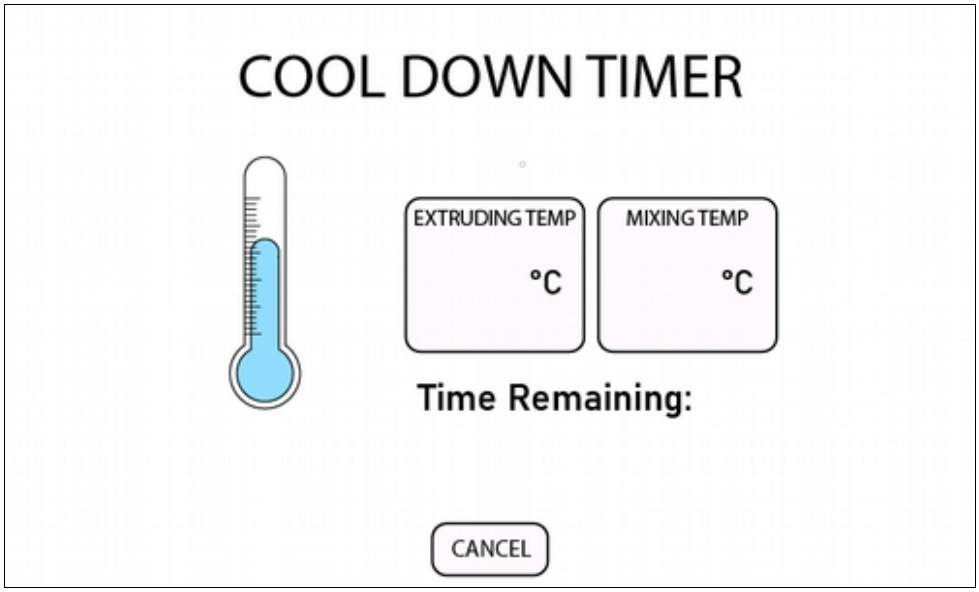
**Motor speed settings:**
This page enables you to set the motor speed values for the FusionX. Adjust the value using the slider or the + and – buttons. The minimum speed is 5 RPM, and the maximum operating setting is 50 RPM. After setting your desired speed, press SET to save the changes. Then, press BACK to return to the main menu page.



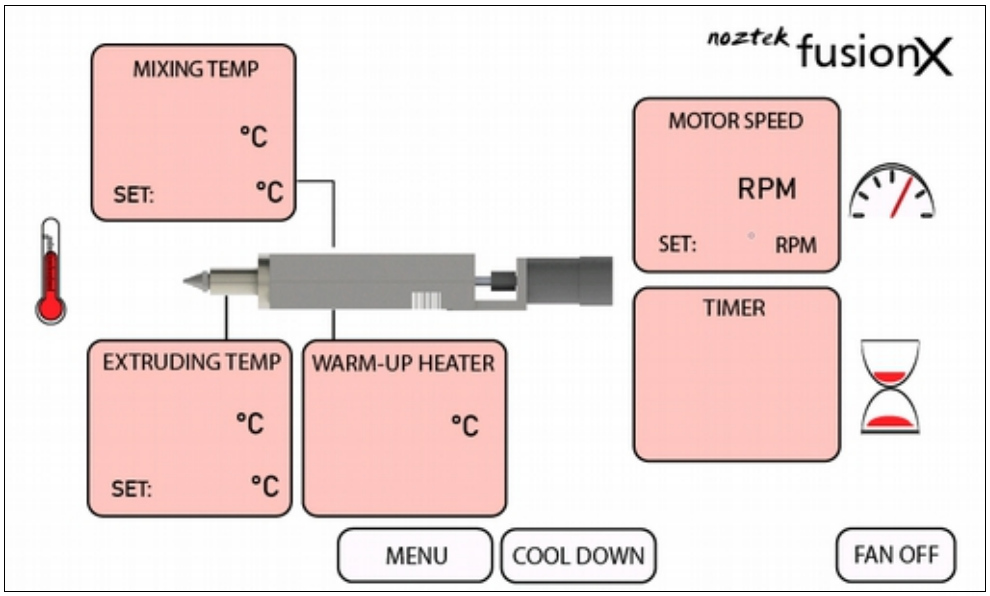

**Timer settings:**
This page allows you to set the timer values for the FusionX. Adjust the value using the + and – buttons. After setting your desired time, press SET to save the changes. Then, press BACK to return to the main menu page. This setting is optional and should be used when operating with time constraints, where you only want the machine to operate for a set duration. Once the timer runs out, the machine will turn itself off.



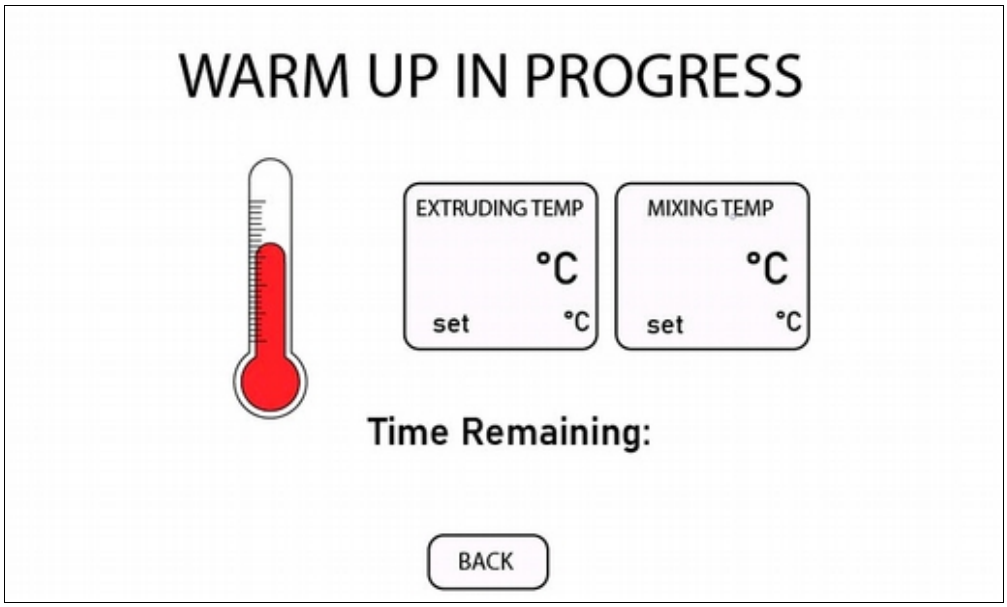
**Cool down timer:**
When selecting the cooldown timer function, this page displays the current temperatures for both the extruding and mixing temperatures. The timer has a set value and cannot be changed. This option is useful for quickly cooling the machine down after production.




**STEP 3. Initiating warm up:**
Once you've finished setting up the fusionX according to the required specifications, it's time to heat up the extruder. Press the MIXING temperature button to engage the pre-heat cycle.



**Warm-up cycle:**
After pressing the MIXING temperature button, the extruder initiates its pre-heat cycle, which takes approximately 35 minutes. This page displays the actual and target values for both heaters. This step cannot be skipped and is essential for the extruder to operate properly. The pre-heat warm-up ensures that the barrel and nozzle reach operating temperatures and melts any material from previous runs, ensuring optimal operation.




**STEP 4. Initiating Extrusion:**
Add your pellets and, after the warm-up procedure, initiate the extrusion process by turning on the motor using the motor on/off switch. After a short duration, the plastic will emerge from the nozzle. Pull the filament through the guide. The extruded filament will be hot, so use heat-resistant gloves. Some materials may require immediate cooling after extrusion; turn on the fan using the fan on/off button to facilitate this. The operational set-up is now complete.

**STEP 5. Shutdown Procedure:**
When finished, turn off the  MAINS POWER SWITCH. These instructions ensure safe and efficient operation of the Noztek FusionX.

**Additional Information:**

**Connecting the FusionX to Your Computer (Windows only)**
1. Download the Noztek Controller Software: Visit our website https://www.noztek.com/software-download/) to download the necessary software.
2. Connect the FusionX Machine: Use a A-B USB cable to connect the FusionX machine to your computer or laptop.
3. Open the Controller Software: Once the cable is connected, open the Noztek Controller software on your laptop. You can now control the settings directly from the laptop interface.

**Quality Measures:**
Extrude approximately 5m of filament, switch off the motor, cut off the excess material, and then restart the motor. This helps eliminate air bubbles and metal particles in the system.

**Temperature Settings:**
You can switch between Celsius (°C) and Fahrenheit (°F) with ease. Simply tap on the °C/°F button to toggle between the two temperature systems.

**Temperature Adjustments:**
Adjusting the temperature also affects filament tolerance. Higher temperatures result in thinner filament, while lower temperatures result in thicker filament. Make adjustments in 5-degree Celsius increments.

# Maintenance

**Cleaning:**
Before cleaning, ensure that most of the material has been extruded from the barrel. Use the provided FusionX protective cover to shield the main body of the machine from any cleaning chemicals. The cover is custom-made for the FusionX machine. Place each tab between the cables and fixtures underneath the barrel and motor, with the back laying down first.

**Lubrication:**
The thrust bearing assembly requires occasional lubrication. To ensure optimal performance, split the barrel to access the thrust bearing assembly. Remove the screw and apply a 2-second burst of a lubricant, such as WD40 Lithium Grease, around the outer diameter of the bearing. This procedure should be carried out every 20 hours of operation.

**Changing the Nozzle:**
Before attempting this operation, ensure you use heat-insulated gloves. To switch between nozzle sizes, heat the unit to the temperature required to melt the material previously used. Wait for 10 minutes to ensure all material is molten. Unscrew the nozzle using a spanner, clean any excess plastic from the internal threads, and then screw on the new nozzle.



**Maintenance:**
Regular cleaning of your plastic extrusion tooling is crucial for prolonging machine life, reducing waste, and maintaining tighter tolerances for your final product. We recommend running purging agents like polypropylene through the barrel for cleaning. If this is not possible, use a wire brush and fine metal pick to clean the threads and screw assembly. If you are unsure how to clean the barrel, please contact the Noztek helpdesk for assistance.

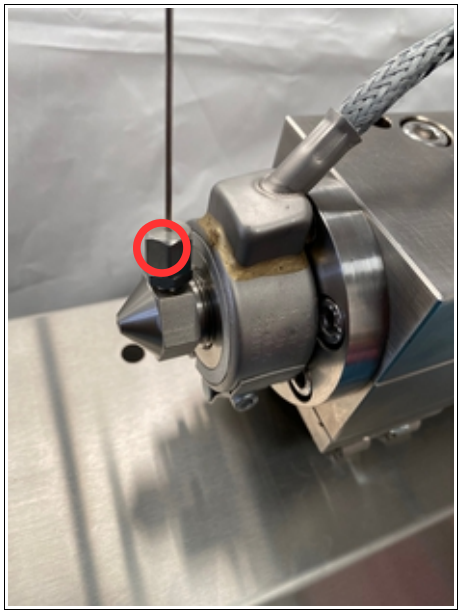
**Barrel Jam:**
Depending on the resin type, you may occasionally encounter a barrel jam. If the motor starts laboring and slowing down during extrusion, immediately switch off the motor. To free the jam, increase the temperature to approximately 25-50 degrees Celsius above the recommended melting temperature of the material and leave it for 15–20 minutes. Then switch on the motor again; this should allow the screw to rotate, purging the barrel.

# FusionX replacing split barrel

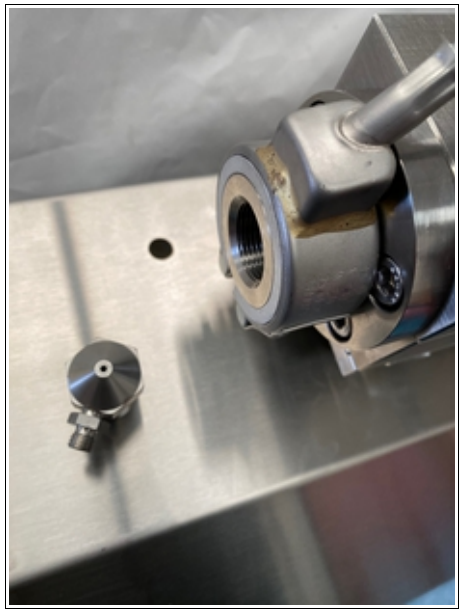
**Before commencing any maintenance procedures, ensure the machine is turned off and unplugged for safety.** This section provides instructions on completely replacing the barrel with a new one while keeping the heater in place.

**Tools needed (Metric sizes):** Spanner sizes: 8,10,11,22. Allen key sizes: 4,6,8.

**Step 1:**
Using a spanner size 11, carefully unscrew the top part of the thermocouple marked in red, as illustrated in the accompanying images. Be sure to retain the bottom part securely screwed into the nozzle.



**Step 2:**
Unscrew the nozzle using a spanner size 22 as shown in the images below.





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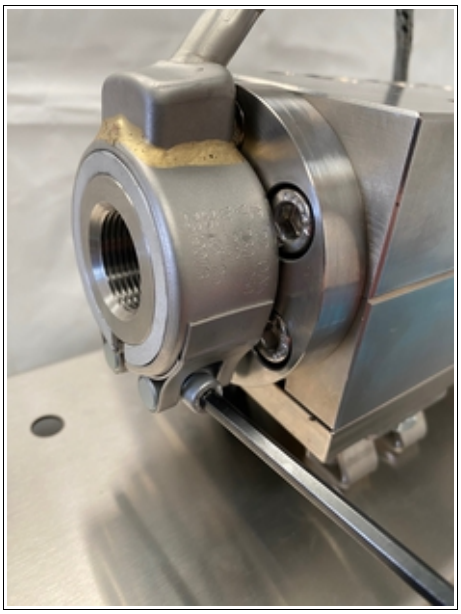
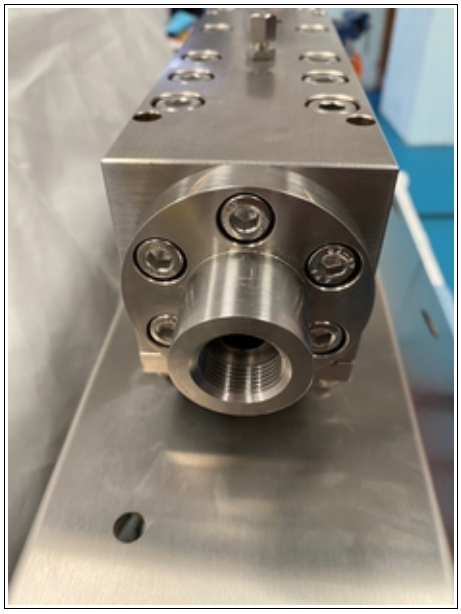
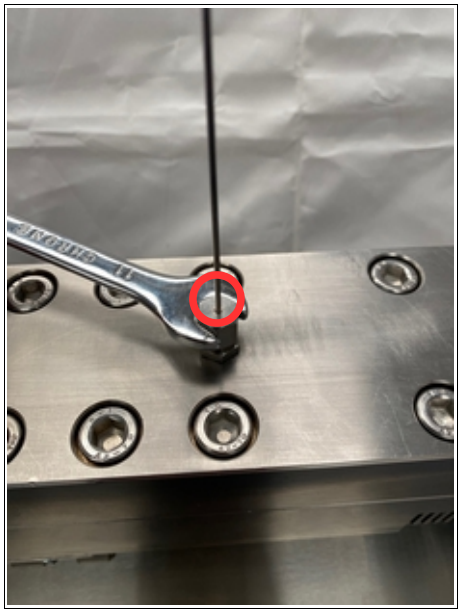
**Step 3:**
Detach the heater band by loosening the Allen bolt with an Allen key size 4, then gently pull the heater band off, as shown in the images below.



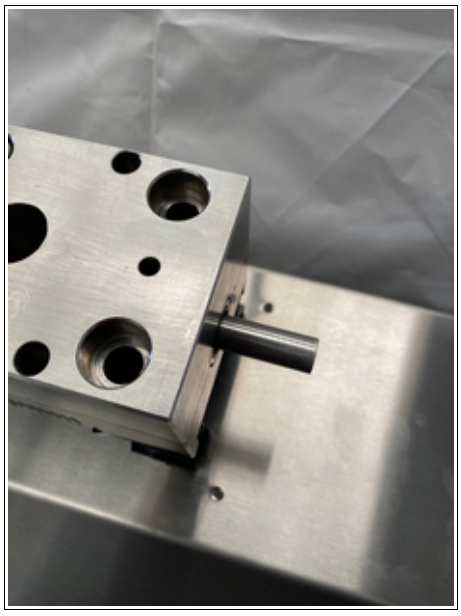


**Step 4:**
Using a spanner size 11, carefully unscrew the top part of the thermocouple marked in red, as illustrated in the accompanying images. Be sure to retain the bottom part securely screwed into the split barrel.

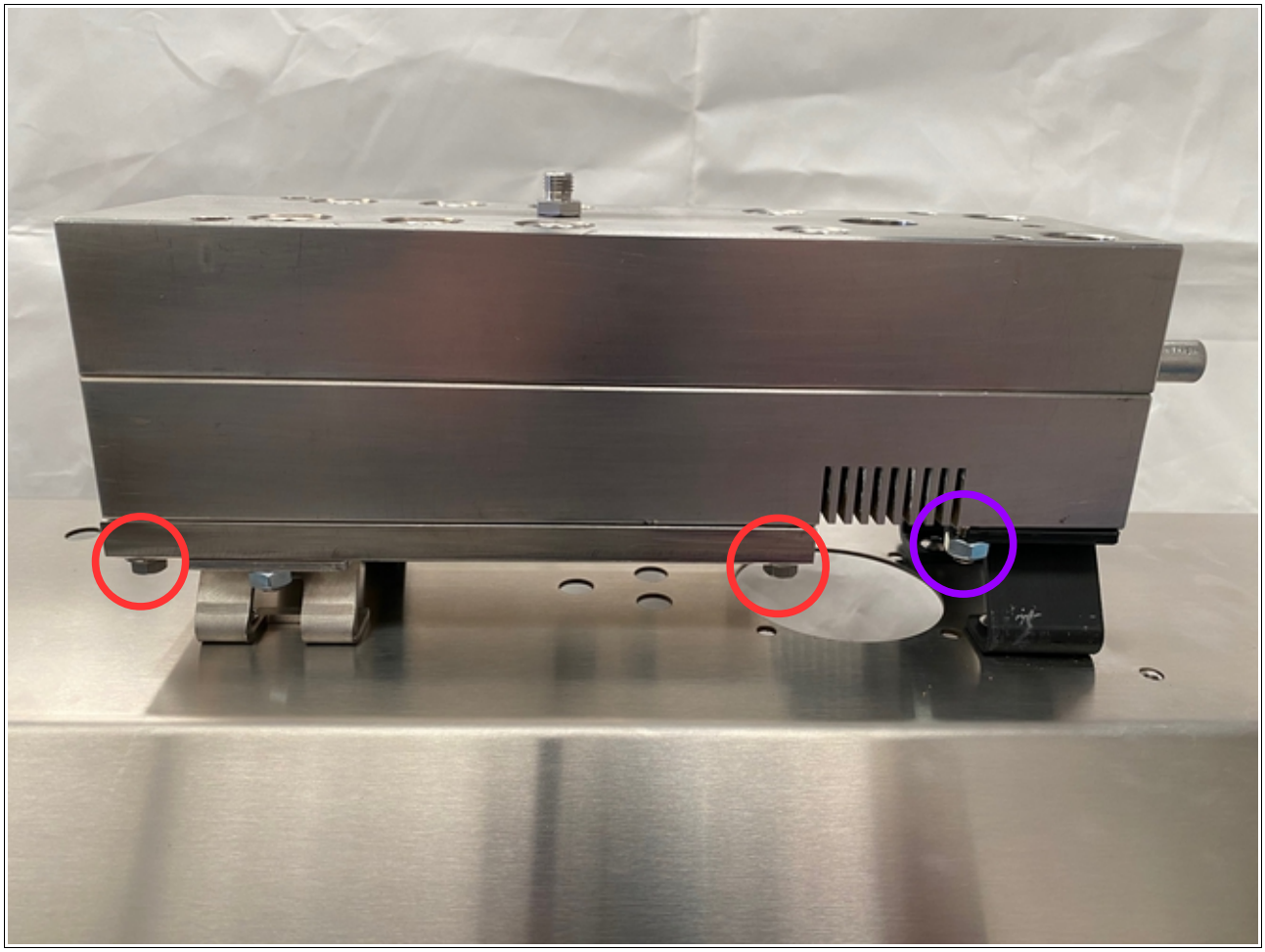


**Step 5:**
Detach the nozzle holder block by unscrewing the 5 Allen bolts with an Allen key size 6, as shown in the images below.

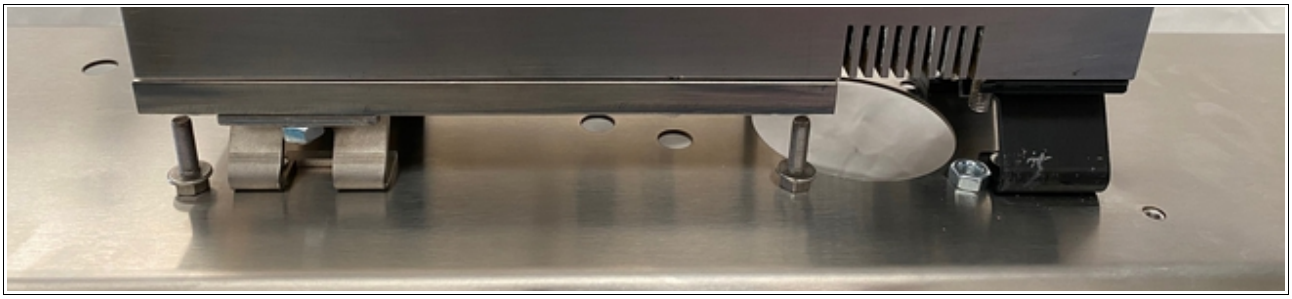
**Step 6:**
Detach the motor block assembly by unscrewing the 2 Allen bolts (Marked in red) with an Allen key size 8, as shown in the images below. After unscrewing the 2 bolts gently pull out the motor block assembly.



**Step 7:**
Using a spanner size 8, unscrew the two bolts highlighted in red on one side of the block, as well as their identical counterparts on the opposite side. Loosen the nut marked in purple with a spanner size 10, ensuring the grub screw in the split barrel remains in place. Repeat this process for the corresponding nut on the opposite side of the block.

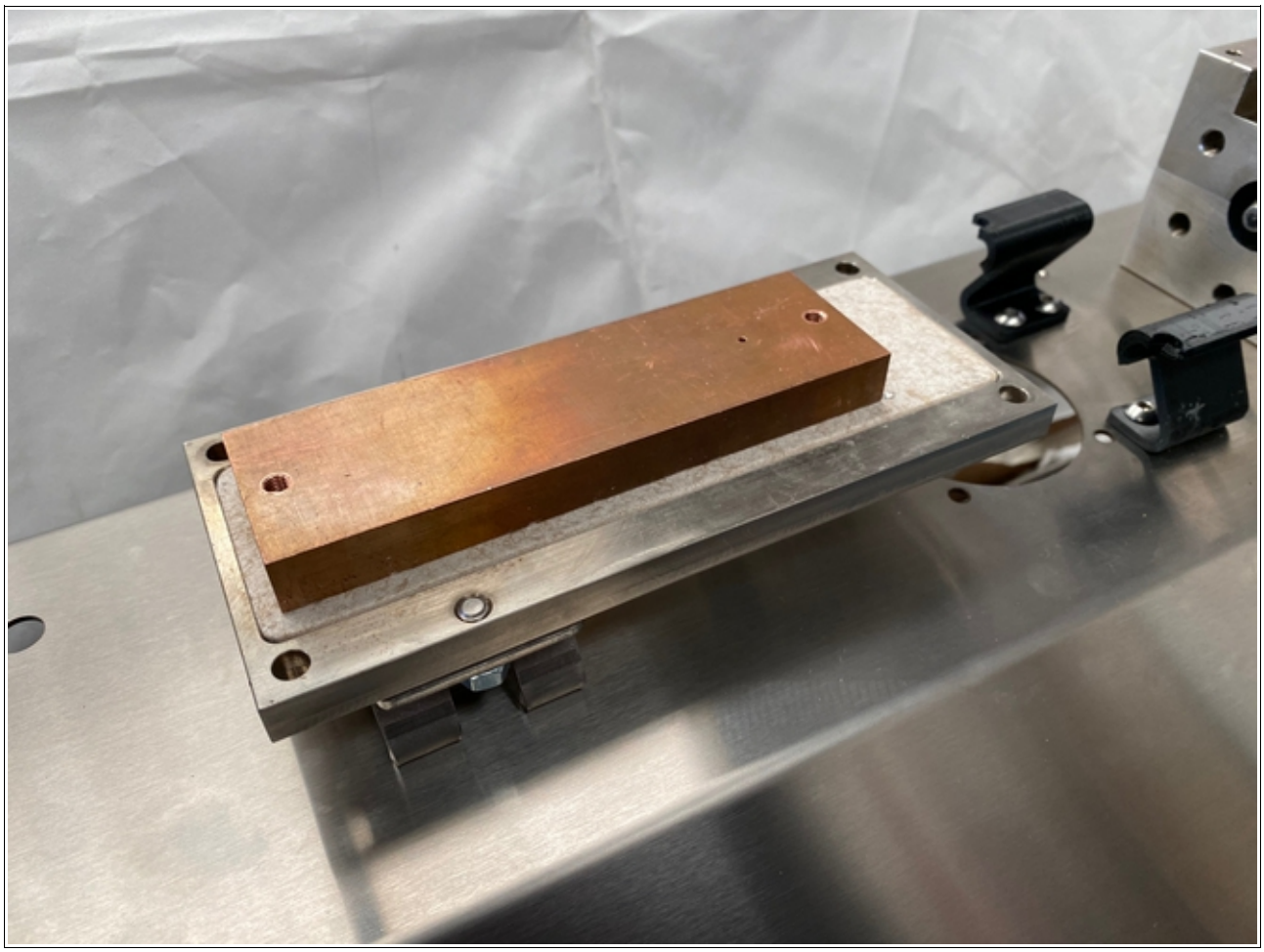


This is what the result should look like after completing step 7.



**Step 8:**

You should now be able to lift the split barrel block off, leaving the heater in place, as illustrated in the picture below. Once removed, you can then place the new split barrel back in position. Finally, repeat the previous steps in reverse order to reassemble the extruder.



## Cleaning the split barrel with the bottom half in situ (Recommended)

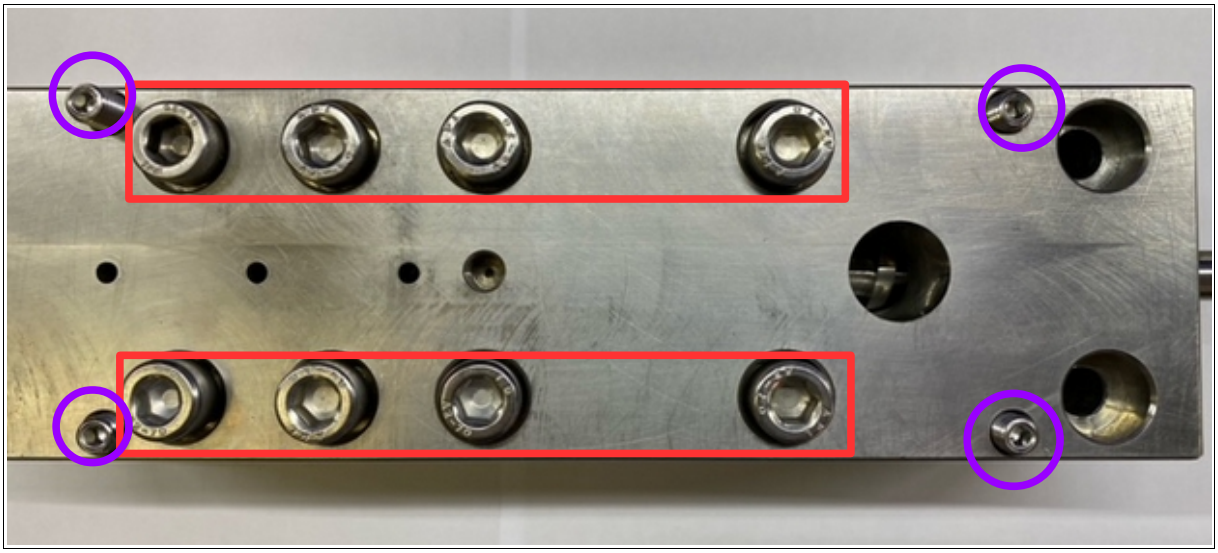
This section explains how to clean the split barrel.

**If you're extruding polymer composites, we recommend using a purging agent after every extrusion run to clear out any debris in the barrel. If you don't have any on hand, you can use a quarter of a hopper of Polypropylene to purge the barrel, making it much easier to clean.**

**We recommend only removing the top half and not detaching the bottom half of the barrel from the base. It's advised to clean the bottom half in situ.**

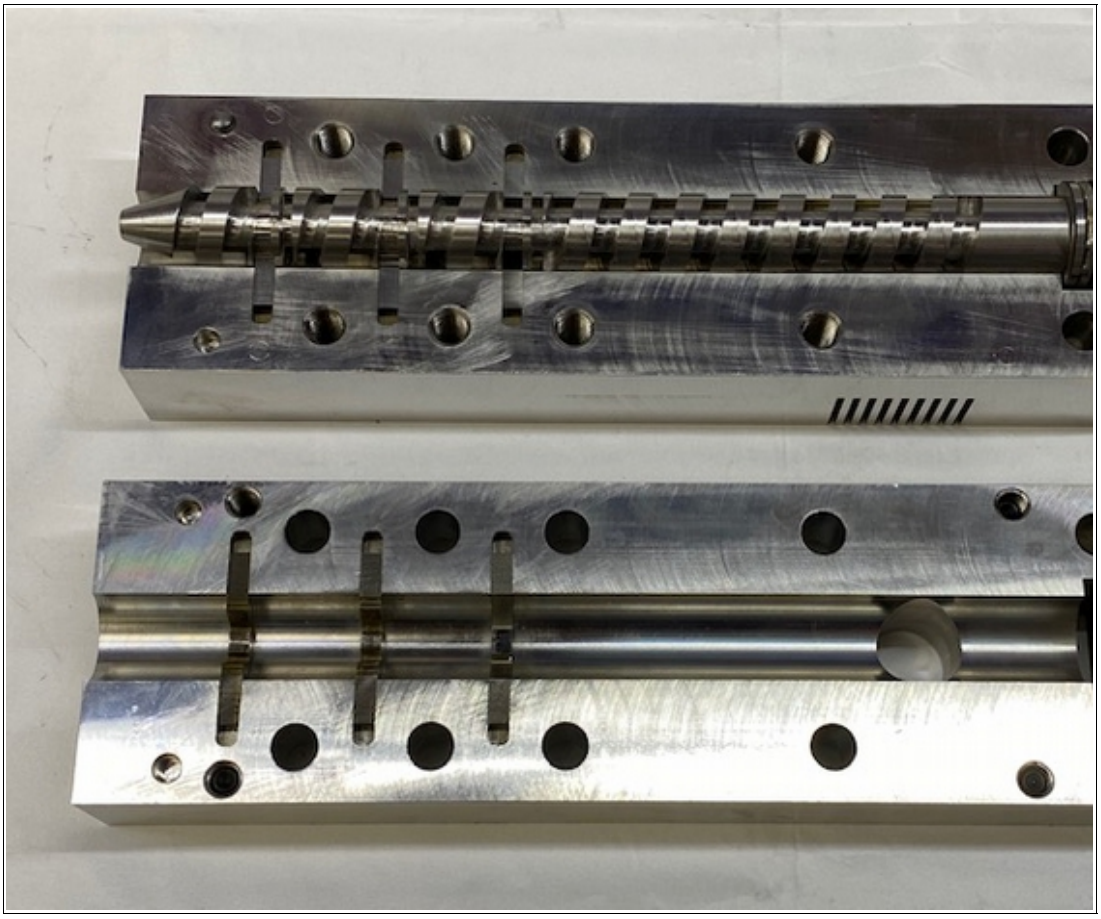
Please refer to steps 1-6 outlined in the preceding section titled "FusionX: Replacing the Split Barrel," and then proceed with step A in this section.

**Step A:**
Detach the top barrel block by unscrewing the 8 Allen bolts (marked in red) using an Allen key size 8, as illustrated in the images below. Remove all 8 bolts from the assembly after unscrewing them. Then, utilize the 4 grub screws (marked in purple) to separate the top block from the bottom block. Turn each grub screw clockwise a few rotations in sequence one after each other, ensuring that each corner of the block is levered to roughly equal height.



**STEP B:**

Repeat this process until the top barrel comes loose. Once it's loose, you can lift it off, and you're ready to clean the barrel. This is what the final result should look like when you remove the top barrel. Now you're ready to clean the split barrel.



## Cleaning the split barrel by disassembling both the top and bottom halves from the case.

**This section details the complete removal of both the top and bottom halves of the split barrel while leaving the heater in place. This method is recommended only for hard-to-clean materials.**

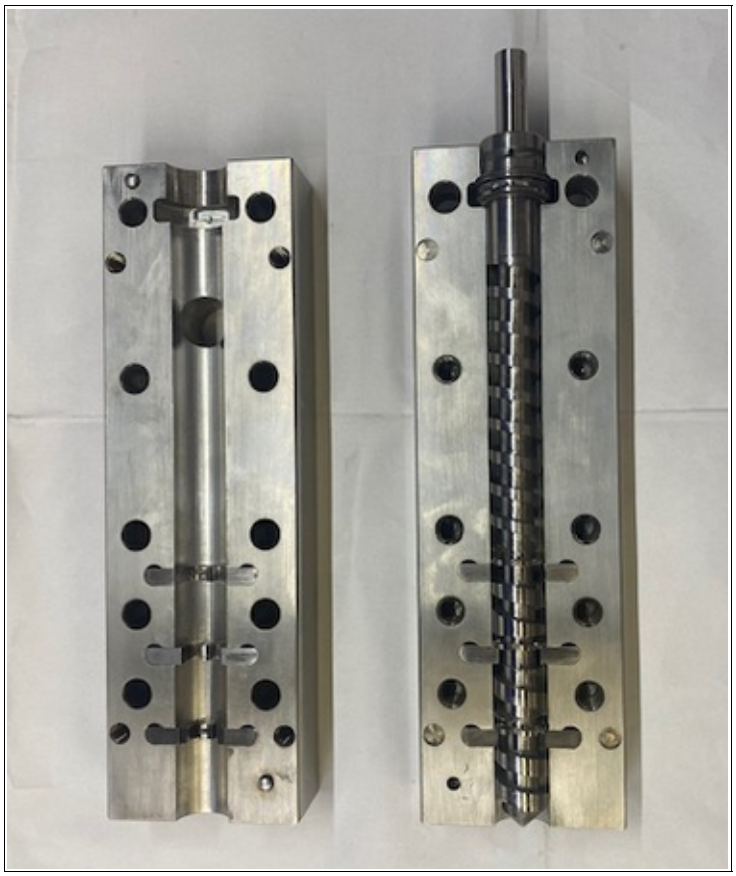
**If you're extruding polymer composites, we recommend using a purging agent after every extrusion run to clear out any debris in the barrel. If you don't have any on hand, you can use a quarter of a hopper of Polypropylene to purge the barrel, making it much easier to clean.**

Step 1: Please refer to steps 1-6 outlined in the preceding section titled "FusionX: Replacing the Split Barrel."

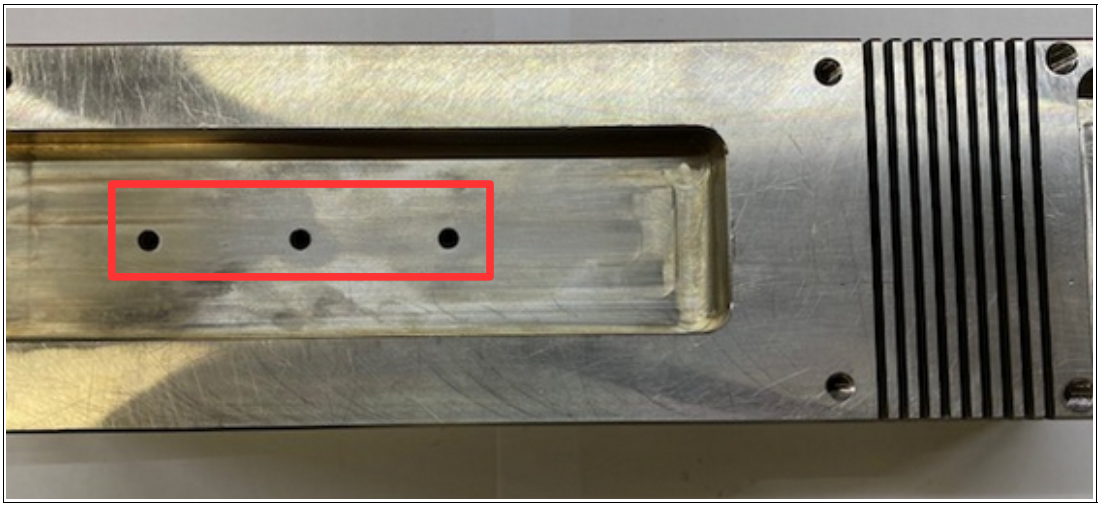
Step 2: Proceed with steps A and B in the 'Cleaning the split barrel with the bottom half in situ' section.

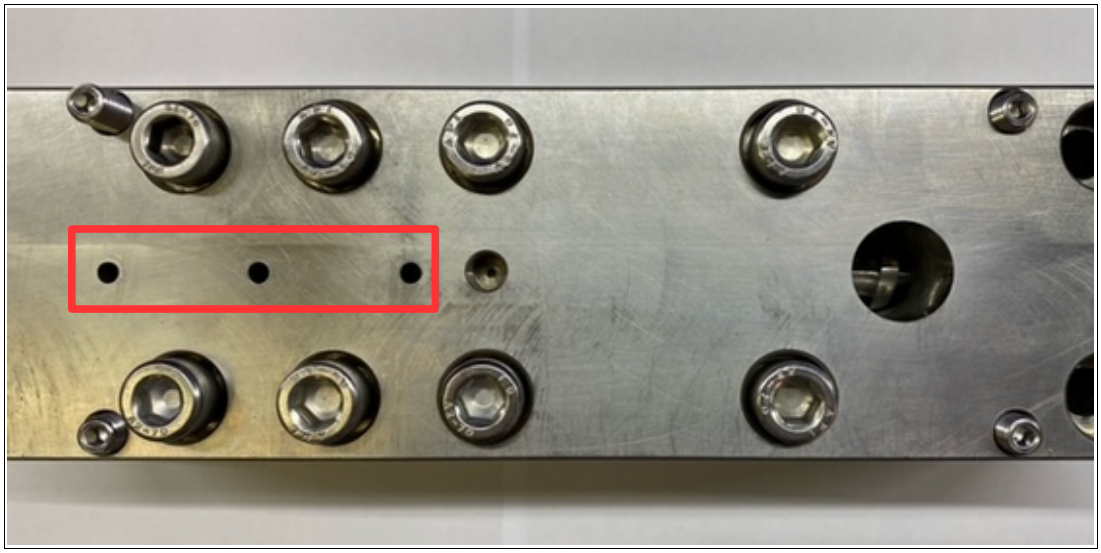
Step 3: Then complete steps 7 and 8 outlined in the preceding section titled "FusionX: Replacing the Split Barrel.

After carefully following these steps, you should have the two half blocks removed from the case and ready to clean, as shown in the picture below.



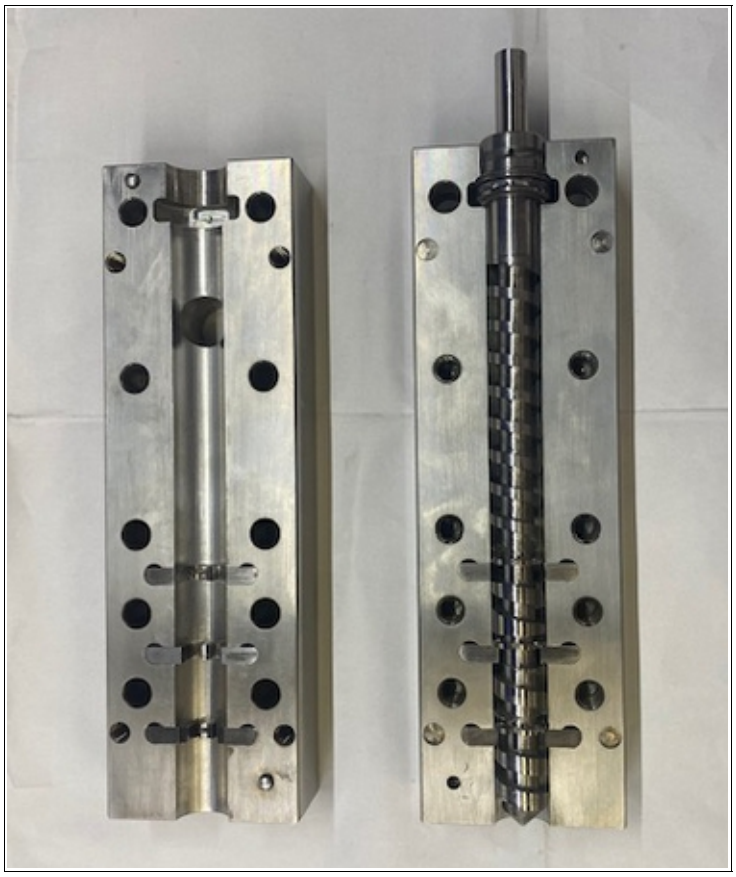
If necessary, you can remove the blades and the screw by gently tapping a pin through the three holes located on the bottom and top of the barrel blocks (marked in red) as shown in the images below.





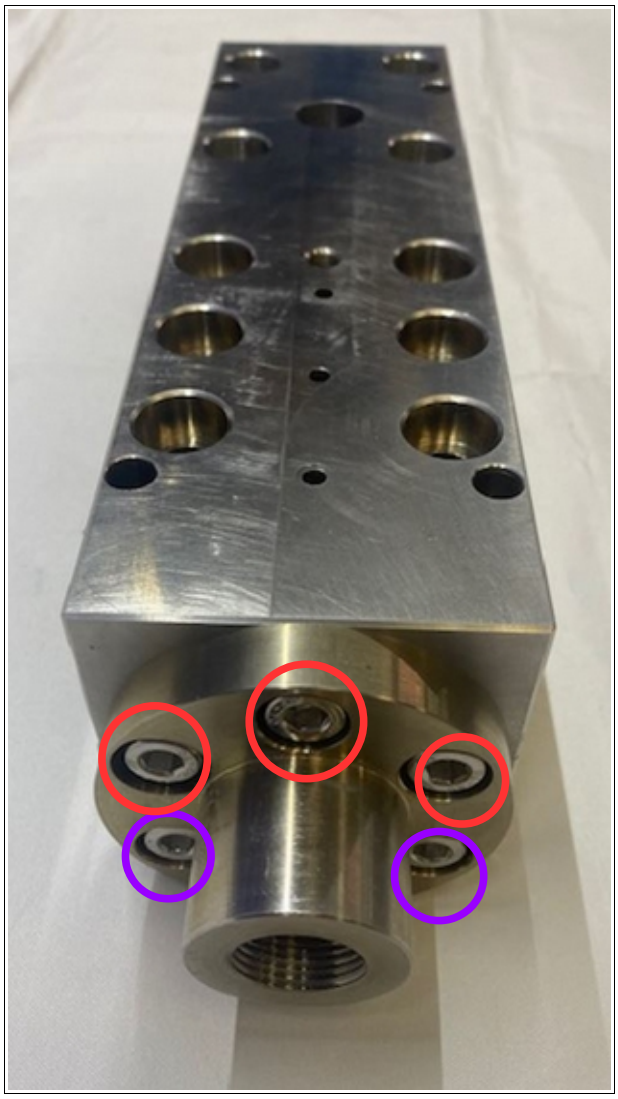
## Reassemble after cleaning

To reassemble the split barrel, ensure that the screw, bearing assembly, and the 6 blades are back in place as shown in the image below.



Then put the top and bottom block gently on their sides and push them together like show on the pictures on the right.

Now, screw the nozzle holder back onto the split barrel. Start by screwing in the top 3 bolts first (marked in red), then the 2 bottom ones (marked in purple)
This ensures proper alignment of the two halves.



## CONTACT NOZTEK

For more in-depth troubleshooting assistance, we encourage you to explore our FAQ help section on our website at www.noztek.com. In the event that your specific query is not addressed within this resource, please do not hesitate to reach out to our dedicated Noztek expert team for direct support and guidance.

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