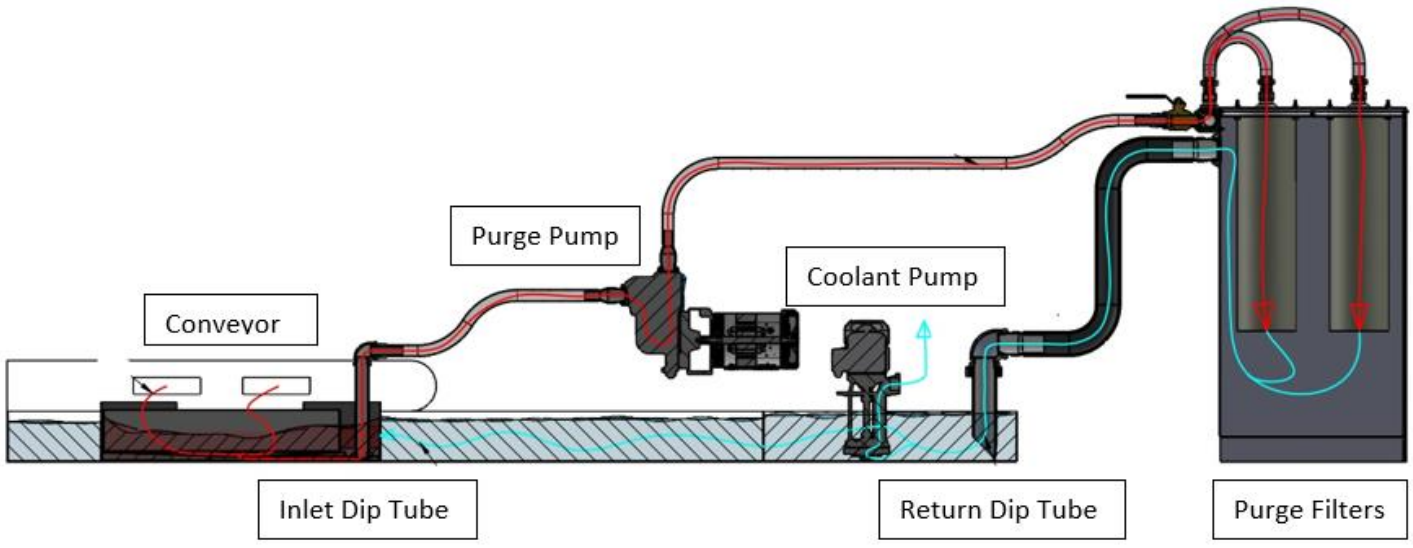
PURGE QUICK START GUIDE – REFER TO OPERATOR'S MANUAL FOR MORE INFO.

WARNING – PUMP STARTS AUTOMATICALLY. TURN OFF BEFORE SERVICING

WARNING – PUMP MUST BE PRIMED BEFORE USE

The MP-PURGE filtration system is intended to be used on machines with filtering chip conveyors or chip screen baskets running water-based coolant or oil. It is not intended to replace a filtering conveyor, but to be used as secondary, finer filtration to clean up all the sludge and debris that accumulates throughout the tank.

- Typical installation time required: 4 Hours
- Low pressure plumbing kit includes inlet, and return dip tubes, hoses, and clamps.
- 3 Phase power kit w/circuit breaker provided to pull power directly from machine.
- Purge can be set to automatically run when powered on; or with scheduled run clock.
- Status indicator light and HMI screen removes need for alarm interface with machine.
- May require hole saws, see appendix in back for more information.
- The Purge requires roughly 24" x 24" of floor space that is located as close to the machine tank's low pressure coolant pump(s) as possible to allow for proper return flow.
- The feed pump can be mounted remotely and should be located close to the inlet dip tube.
- The pump can either sit directly on the floor or be mounted on the coolant tank if space allows.
- The Severe Duty "SD" model will come with pump mounted on stand base. Use alternate bolt patterns to reposition the direction of pump inlet if needed.
- Purge Electrical panel and Manifold locations can be swapped if required for proper return hose direction.



Pipe fittings are sent loose to allow for adaptable configurations. Use provided tape when installing.

1. **Install Inlet and Return Dip Tubes.**

One of the biggest factors of a successful Purge install is where you place the suction dip tube in the tank. There is only one suction tube on standard models, and it can only be placed in one location.

- The maximum chip size the Purge can handle is ¼". If larger chips are present, an optional screen or basket can be added to separate the larger chips out.
- In less-than-ideal cases where some of the debris may be missed, the Purge will still provide an excess of clean coolant directly to the clean side of the machine tool tank.
- This will provide the machine tool with more coolant up-time; however, you may have to clean out the tank periodically. Also, because of the Purge's high flow, it will eventually capture debris that is in suspension, even with a poorly placed dip tube.
- A minimum coolant depth of 4" at lowest is required. 5" or more is preferred.
- Can be installed in spare coolant pump opening or a hole may need to be cut.
- A 1 ¾" hole saw may be required. Refer to hole saw guide for more info.

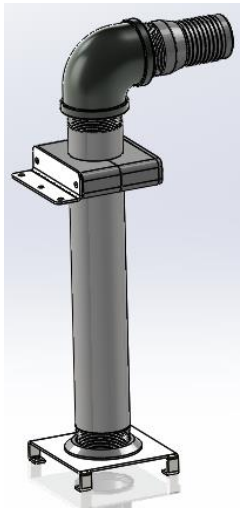
With Filtering Conveyor:

- Install close to chip conveyor outlet(s), where coolant and debris first enter the tank.
- The idea is to pick up and filter the dirty coolant right as it enters the tank before the debris has a chance to settle.

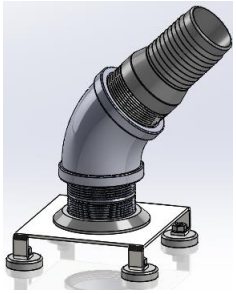
With Non-Filtering Conveyor:

- Install after stock perforated chip basket screen with perforations no larger than ¼".
- If no chip basket is present, a custom made to order basket can be ordered from MP Systems if dimensions are provided.
- If there is not enough allowable room to install a basket, place the pickup in a location downstream from the conveyor exit so large chips have a chance to settle to the bottom of tank before making their way into the suction inlet and clogging pump.
- Suction inlet should be placed in path of coolant so that the purge will capture and filter out any suspended particles that would normally migrate towards the coolant pumps.
- A minimum coolant depth of 4" at lowest is required. 5" or more is preferred.
- Can usually be installed in spare coolant pump opening or a hole may need to be cut.
- A 1 ¾" hole saw may be required. Refer to hole saw guide for more info.

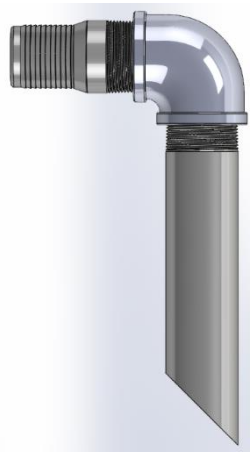
- When possible, use the supplied dip tube pipe assembly and green clamp to fasten to tank top. ----------→
  Ensure that the plate touches the bottom of tank.



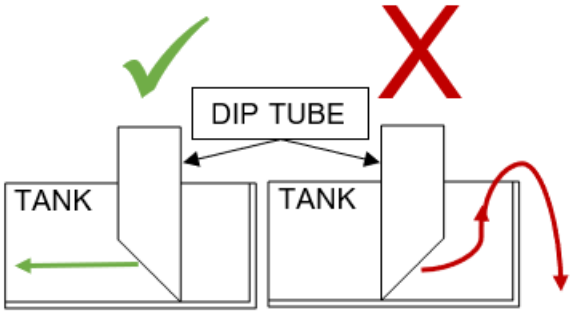
- If there is not a suitable place to fasten the dip tube and clamp, install supplied magnets to bottom of the low level plate and reconfigure plumbing to allow for proper dip tube placement and hose routing. ---------->
  Ensure hose is routed and secured properly



- **2 ½” Return Dip Tube**



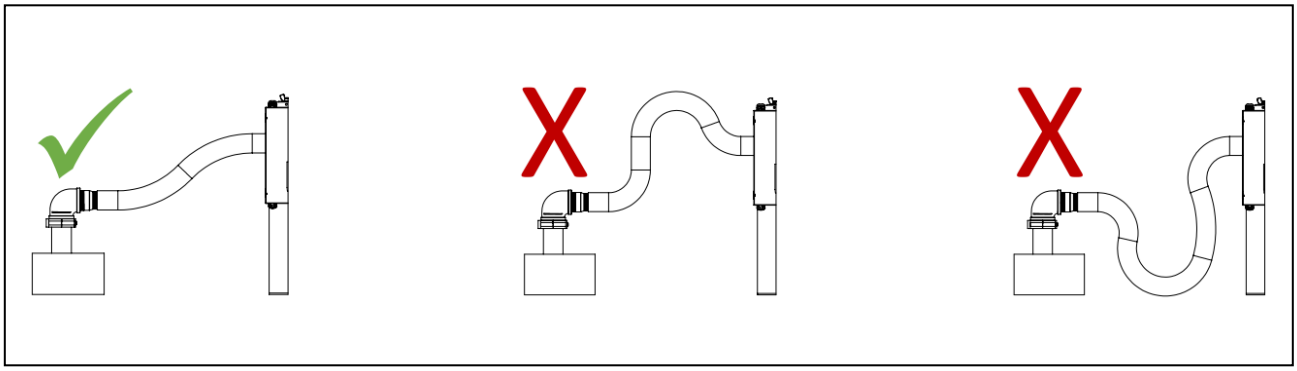
  - Install on opposite side of tank from suction Inlet, near coolant pumps to create counterflow back to inlet.
  - Can usually be installed in a spare coolant pump opening.
  - A 3” hole saw may be required to cut hole in tank. Refer to hole saw guide in back.
  - Ensure 45 cut opening on pipe is facing proper direction for flow.
  - Caution* Do not reduce return fittings and restrict return flow.



Tighten hose clamps carefully. Use provided 5/16” hand driver for standard worm gear clamps.

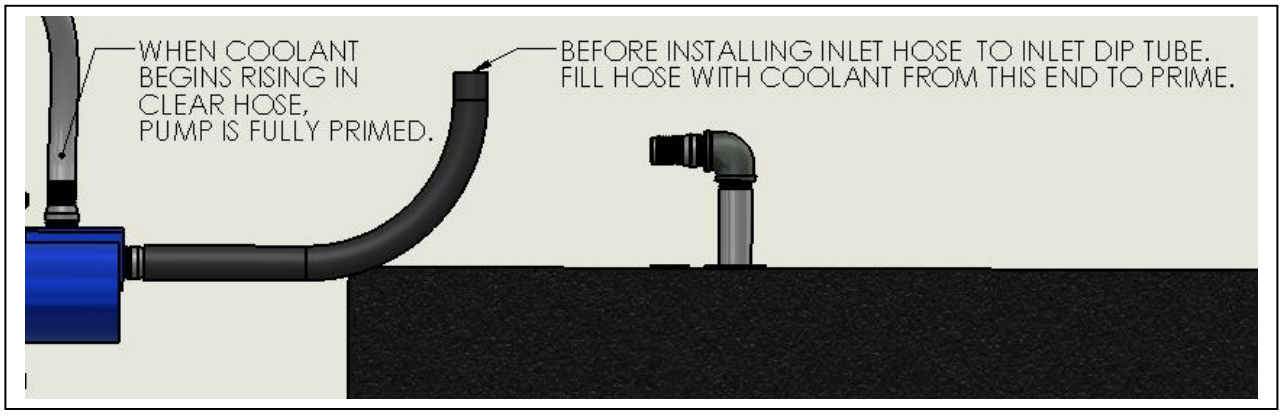
2. Attach hoses and tighten clamps

- Inlet hose(s) should be as short as location allows and run along floor.
  - Install hose(s) to pump inlet. Wait to attach hose to one inlet dip tube until after priming.
- Pump outlet hose to purge inlet manifold. Again, keep as short as possible.
- 2 ½”” Return hose should have a nice gradual slope downwards towards tank.
  - The Purge uses a gravity-based return. Because of this, the hose must be as short as possible and have a continuous downward slope. If the hose goes under the tank level or over the top of the Purge, it can block the flow of coolant, causing an alarm.
  - Return hose MUST NOT be positioned higher than overflow port on purge tank.
  - Overflow port on purge tank MUST BE higher than return dip tube in machine tank.



3. Prime Pump & Fill Purge Tank

- Ensure inlet hose(s) are attached to the inlet of pump and the clamp is tightened securely.
- Fill the inlet hose from the dip tube end, so coolant fills both the hose and pump casting completely from inlet side. You should be able to see coolant rising out of pump outlet hose when full.
- Note: Use a funnel to fill hose. You can also use a large zip tie to secure the open hose end over coolant tank to catch any spilled coolant while filling hose.
- Using the same coolant that will be used in the machine’s coolant tank, fill the purge tank until coolant begins flowing out of the overflow return hose and into machine tank.



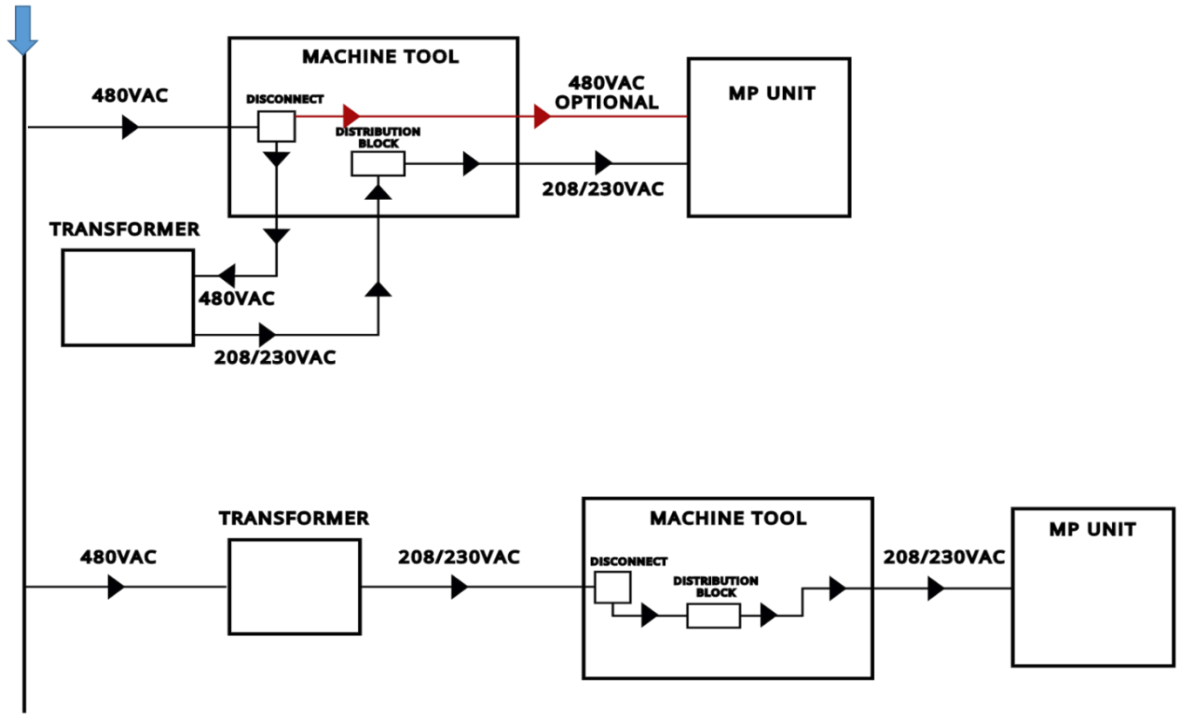
4. Install 3-Phase Power

Many large industrial facilities run on 480v 3phase @ 60Hz electricity. Most machine tools in the United States require a step down transformer as the machine tools, typically, run on 200 +/- 10% VAC. **208-230v is the standard voltage for MP Systems units.** (Optionally, 480V units can be purchased, voltage cannot be changed in the field)

Utilizing machine tool voltage makes lockout/tag-out far easier and allows it to comply with most local regulations.

Power can either be pulled from the machine tool electrical cabinet using the provided circuit breaker and cabling in the installation kit if the machine tool breaker allows, or from a separate drop.

- Purge kit contains power cable, circuit breaker, twist lock plug, and all necessary connectors.
- Following local electrical codes, install 3phase power to 208-230VAC line (480V optional).
- The Purge is phased Red, White, Black.
- Connect twist lock plug into receptable on bottom of Purge electrical panel.
- *Warning, pump may auto start when Purge disconnect is turned on*



5. Select desired method of Starting and Stopping the system.

A. Manual Operation using Start/Stop Buttons on PLC. (Factory Default)

- The pump can be manually turned on/off by pressing the START and STOP buttons.

B. Auto Start When Powered On (Optional)

- The pump can be set to automatically turn on when the unit is powered up.
- On the main display, press the button labeled “AUTO START”.
- *Warning, pump will auto start*
- The button will now display “AUTO START ON” and the function is now enabled.
- Pump will automatically turn on when power is turned on and off when powered down.
- START/STOP buttons will still function to override auto controls; however, it will automatically START when power is cycled back on.

C. Scheduled Start/Stop RTC function (Optional)

- The Purge can be started and stopped by a scheduled RTC timer. Ex. 6am-6pm
- The Purge must be powered on for this function to work.
- On the Main Display, Press “Automatic Start/Stop” button.
- Set current date and time by updating RTC setting.
- Set start time and stop time.
- Select what days of the week the system should run. *Warning, pump may auto start*

D. Install External Run Signal (Optional)

- The Purge can be automatically turned on and off by connecting to a machine signal.
- This signal will also keep track of machine run time vs purge run time.
- Identify a device or signal in the machine that will turn on whenever the machine is in a “ready” or “running” state. DO NOT connect to the E-stop circuit.
- MP Systems recommends connecting into the Green Tower Light 24vdc signal.
    - This signal is always on when the machine is running in auto mode.
- Install the provided multiconductor cable into the machine cabinet and ensure there is enough length of cable to reach the Purge electrical panel terminal strip. Install ½” cord grip in bottom of purge e-panel and route cable into panel.
- Follow interface schematics and wire directly into terminal strip in purge e-panel.
- Remove pink jumper wire from Purge e-panel terminal strip if using this function.
- Locate the green light output from the machine. Cut wire and crimp female tab onto output wire close to output connect. Connect MP wire #10 (Purge Run Signal) along with green light wire into male tab. Connect both tabs together. Connect MP Wire #2 (0v) to the light’s 0v reference source.
- If using external signal, Auto Start function will need to be enabled on PLC.
- On the main display, press the button labeled “AUTO START”.
- *Warning, pump may auto start*
- The button will now display “AUTO START ON” and the function is now enabled.
- Note: Other signal(s) may be used. Wires #1 (MP +24v) & #10 (Pump On) can be wired across normally open dry contacts if available.

6. Start system and do preliminary check

- Motor rotation. Pump motor should rotate clockwise when looking at fan.
- Set Flow Rate. Depending on tank and pump configuration, the Purge flowrate can be set between 30-60 gallons per minute of flow (40-80gpm on Severe Duty Model). Smaller tanks require less flow, larger tanks require higher flow. Larger debris also requires higher flow to ensure it is captured and filtered before settling. Flow rate of purge should exceed total flow rate of all pumps in machine coolant tank. This ensures a constant backflow of clean coolant from the purge return dip tube in the coolant pump chamber, through the screen, and back towards purge inlet.
- Check Return Flow. After turning the purge on, ensure that the return hose is flowing freely and routed properly to ensure that it can handle the flow rate set in on the purge system.
    - If return hose is routed in a way that will not allow adequate flow back to machine tank, an alarm will occur on the purge control. Adjust hose routing or raise purge tank to fix.
- Check run signal functionality.

HOLE SAW GUIDE

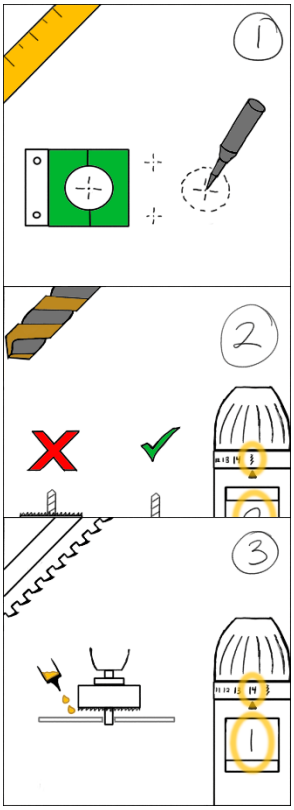
When installing MP Systems products, the correct location of the dip tubes is important to a successful install. The best way to do this is to use a preexisting hole in the tank can be used to pass the various pipes through the tank top. This is not only quick and easy, but also gives you a perfect window to be able to see what is going on in your tank for troubleshooting. Sometimes, this is simply not an option and a hole must be drilled in the tank.

If you find yourself in a pinch, most hardware stores like Home Depot or Lowes will have the required hole saws available, you will want to find a **bi-metallic hole saw** like a Milwaukee or Lenox depending on which store you go to. These tend to be the best option in a hurry, however they will wear out, so if you have a lot of holes to drill, it may be wise to purchase more than one.

If you know ahead of time that you will need them, then they can be ordered from McMaster, or MP Systems stocks and can ship a kit with all the necessary components.

HIGH PRESSURE	PURGE	CDR	PIPE SIZE	HOLE SAW	McMaster	MP Systems
X	X	X	1 1/4"	1 3/4"	3789A29	AK HOLE SAW KIT
		X	1 1/2"	2"	3789A33	AK HOLE SAW KIT
		X	2"	2 1/2"	3789A39	AK HOLE SAW KIT
	X		2 1/2"	3"	3789A45	AK HOLE SAW KIT
X	X	X	ALL	ARBOR	3789A61	AK HOLE SAW KIT
X	X	X	ALL	PIN 3/16 X 2	97395A618	AK HOLE SAW KIT

Cutting a hole in sheet metal seems like a common task, however doing it right will not only be safer, but can also improve tool life, cut speed, and cut quality (clean vs. jagged edges).



1. Start by measuring twice. Use the green pipe clamp for the dip tube you are installing to help layout where the hole needs to be drilled, as well as where the fasteners will need to go for the clamp. Use a center punch to locate the holes and prevent drill drift.
2. Use the appropriate size drill to make a pilot hole in the center of the cut. *NOTE* Only the drill should be used at this point, do not use the drill bit while attached to the hole saw. When the drill breaks through, you can damage the hole saw by “punching” the sheet metal and breaking or bending the teeth.
3. Install the blank pin in the arbor, then thread on the hole saw. (In a pinch, an old drill bit installed backwards can work as a guide too) Be sure to set your drill to low speed and change from drilling to torque mode.
4. Apply cutting fluid and begin cutting, feathering the trigger to maintain a moderate speed.
5. Be sure to continuously add cutting fluid to keep the hole saw cool and lubricate the cut.