



Artisan Still Design
Basic Operations Manual

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Disclaimer:

Do not rely solely on this manual. It is not meant to replace established company safety protocols, industry best practices, local and state codes, or any federal regulations. This manual is merely an additional tool for your distillery. We encourage you to research best practices and take whatever steps necessary to ensure that you and your team are protected and perform safely.

Contact Information:

Artisan Still Design

5900 Hwy 45

Eight Mile, Alabama 36613

Office: (215) 308-2484

Sales and Equipment Information: sales@artisanstilldesign.com

Tours, Business Inquiries, and Other: info@artisanstilldesign.com

Your Sales Representative is: _____

Their Distillery Name: _____

Phone Number: _____

Email: _____

I. Introduction

Welcome to the Artisan Still Design Family! You have taken a huge step towards making award winning spirits by joining the Artisan Still Design (ASD) family of distilleries. Over 150 Distilleries in the United States, Canada, the UK, and India currently use ASD equipment to produce over 1,000 different labels and have won dozens of awards. We hope you do the same and that we can help you do it!

Artisan Still Design is a small, family company that produces high quality, affordable, and beautiful equipment for the Distillation Industry. ASD has grown over the years from building equipment in the garage, to a 30,000 square foot facility in Mobile, Alabama. Each of our systems are built, inspected, and finished to your specifications in our facility. Each of our systems are made in the United States for beverage alcohol use.

Even though we have included some safety tips and things to consider, this manual is not a safety manual. We recommend and encourage each distiller and owner to become familiar with their local and state codes, federal regulations and requirements, and to take the time to research and develop adequate safety procedures for their distillery.

II. Prep Needed

Prior to ASD coming out to your location to Assemble your System, there are some things that must be completed by your team and CANNOT be completed by ASD Staff.

1. **Water/Chiller:** A certified plumber is required to install any cooling water connections. Water connections will be needed for the condenser, each dephlegmator, and a line (for clean water) to use to fill the pot, fermenters, mash tun, ect for cleaning or for thinning out wash/mash. ASD Staff cannot run these pipes. For the initial run of the still, you may simply have in and out lines piped and use hoses to connect the condenser and dephlegs. Please ensure that there are connections for each dephleg and condenser. Once the system has been tested, you may have your plumber hard pipe (usually with copper pipe) these connection. ASD Staff CAN connect hoses to the system for the purposes of testing the system, but cannot run/install the hard pipes.
2. **Electric:** A certified electrician is required for connecting items such as (if applicable) agitators, CIP pump, reflux pumps, dephleg controllers, electric power controls (for electric powered systems), lighting, and related. Again, ASD Staff cannot connect these devices to power.
3. **Steam:** A certified pipefitter or steamfitter will be required to connect and run your steam pipe from the boiler to the still pot. ASD staff cannot under any circumstances connect your steam lines to the still itself. Steam inputs on ASD systems are typically located on the left side of the pot, at the bottom of the pot. Most distilleries run the steam ahead of time to an area nearby where the pot will be located and finish the connection once the pot is in place. Most will also have the valve assembly ready to install so on the day the

ASD Sales Rep is there, the pot can be placed, and the Steamfitter can finish the connection while the Sales Rep is working on finishing the assembly of the rest of the system.

4. **Floorplan:** Often overlooked is the area surrounding the system. Please ensure that the footprint of the system will fit in the location you want the system. Our largest batch systems (1,200 gallon) have a footprint of 20 feet long, by 8 feet deep, and (with vodka column) 22 feet high. Any system smaller than 1,200 gallons will fit in this area. You can get dimensions of your particular system from your Sales Rep. Also, if you have size constraints (ie. lower ceiling, ect) we can modify your system down to 10 feet high. BUT****-this must be done prior to starting the build on your system. Once fabrication has begun, it is VERY difficult to adjust the plans. If this is needed, additional design and fabrication charges may be incurred by the Buyer.
5. **Construction:** Please ensure that all build out is done in the area around the system. For example, if you are putting in a gondola or other hole in your roof, please have this completed (or at least secured) prior to setting up the system.
6. **Controller(s):** Control systems provided by third-party suppliers should be mounted and ready to connect to any thermocouples, valves, ect when the ASD Rep arrives on site. Piping does not need to be completed (we can use hoses for the initial run). If the controllers are provided by ASD, ASD will set up the controller, but a certified electrician must connect it to power.
 - a. You may wish to build or have a controller built for you.
 - i. We recommend that they be connected at least 10 feet away from any open alcohol source, or according to any local code that might apply.
 - ii. We recommend that they are water resistant, fully engineered, and meet local, state, and any federal code (if applicable).
 - iii. Any damage to an ASD system from the use, misuse, or faulty installation, of any third party controller, will void ASD's warranty.
 - b. ASD steam driven batch systems come with a basic control systems.
 - i. These control systems are not fully automated, but will allow you to run the system, agitators, CIP pumps, dephlegs, and related.
 - ii. Fully Automated controls can be purchased as an upgrade through ASD.
 - c. ASD Continuous systems come with an automated control system.
 - d. Controllers for electric powered (bain marie style systems), steam driven systems, and continuous systems can be also purchased from the following suppliers:
 - i. Artisan Resources, LLC
 1. Can supply electric powered system controllers (for 150 gallon or smaller electric bain marie systems) and fully automated controls for any size batch and continuous systems if you don't wish to buy them from ASD.
 2. Contact Information:
 - a. Artisan Resources, LLC,
 - i. 421 Stanely Drive, Shepardsville, KY 40165

- ii. <http://www.artisanresources.com/>
 - iii. (502) 641-9577
 - iv. (502) 418-6957
 - ii. Swede
 - 1. Can supply electric powered system controllers (for 150 gallon or smaller electric bain marie systems) and other possible systems.
 - 2. Contact Information:
 - a. swede@distillerycontrols.com
 - b. <http://distillerycontrols.com/>
- 7. Buyer should have the following equipment on site and ready to use for the installation:
 - a. forklift or gantry crane high enough to install your particular system;
 - b. pallet jack;
 - c. toolkit with wrenches, socket set, screwdrivers, crowbar, ect;
 - d. rolling platform ladder, scaffolding, or other ladders;
 - e. If you don't have some of this equipment, let your Sales Rep know. They may be able help you secure it, either through purchase or renting from a local provider.
 - i. Sales Reps will have some equipment themselves, but it may be very difficult to get larger items to your facility.

III. Installation/Training Process

Once your last payment has been made, your distillery is fully prepped, and your system is scheduled for delivery, an ASD Representative will schedule a visit to your distillery in order to oversee the assembly of the System.

It will be in your best interest to have the site prepped and ready for the installation, and to have a certified steamfitter/pipefitter, electrician, and plumber scheduled to be there as well. ASD staff cannot connect your system to your utilities, as they may not be certified in your state to do so. Having these people ready for installation will ensure that the system will be ready to function while the ASD Representative is on site. This will allow the Rep to go through a first run of the system, repair any leaks or bad connections, and train your staff on the operation of the equipment.

Failure to have the site prepped when the Rep arrives will result in extra fees to the Buyer. If the Rep must return on another date to complete the install and training, the Buyer will be charged a fee of \$1,000 per day for the Rep to return. Most installs will take only 1 or 2 days, depending on the size of the system.

IV. Warranty Information (Subject to Change at any time-refer to your Purchase Agreement for current Warranty information)

For a one (1) year period from date of Acceptance (the "Warranty Period"), ASD warrants that the original Equipment provided to Buyer pursuant to this Agreement shall be free from defects

in material, manufacturing workmanship, and title, and that the Equipment will operate in conformance with the Specifications set forth in Exhibit A and will operate as described in all marketing and advertising materials provided to Buyer (the "Warranty"). The Warranty also shall apply to any replacement part or to any Enhancement approved in writing by ASD.

Further, ASD warrants that all service repairs shall be free from defects in materials and workmanship for the greater of:

1. the balance of the Warranty Period; or
2. sixty (60) days after the date the repair is completed.
3. If Buyer attends the ASD Annual Distilling School training program during the first year of the warranty period, this warranty will be extended by 1 year.

To enable ASD to properly administer the Warranty, Buyer shall

1. Promptly notify ASD of any claim hereunder, and
2. Provide ASD with the opportunity to inspect and test parts claimed by Buyer to be defective.
3. Ensure that all payments are up to date and that no outstanding payments are owed to ASD. Until past due amounts are cleared, the Warranty shall be suspended.
4. Warranty will start once the equipment has been delivered to Buyer.
5. ASD shall have 90 days in which to complete repairs under this Warranty.
6. A Cleaning fee of up to \$1,000 may be charged for items shipped for repairs that have not been cleaned prior to arriving at the ASD Facility.

Defective Equipment will be repaired on-site (by Buyer or ASD authorized third party), shipped by Buyer to ASD's Main Sales Office or shipped to a third party contractor approved by ASD. This Warranty does not cover damage due to operator error, negligence, failure to maintain equipment, or improper use, failure of third party equipment, unauthorized additions, or unauthorized repairs. Stuffing the column, or other vapor path areas, including blocking the vapor path, with marbles, copper mesh, or similar packing materials will immediately invalidate the warranty. Our systems are not "fuel ethanol" systems and are designed to provide reflux using plates, bubble caps, and dephlegmators, and have more than enough copper for any application. There is no need for added packing, either for reflux or for copper contact. ASD considers this a improper use of the equipment and will invalidate the warranty. Buyer understands that this will be a violation of the Purchase Agreement and that ASD is hereby indemnified from liability by Buyer.

Any distillery control equipment or other third-party equipment, provided or built by a third party vendor are not covered under this Warranty, even if listed as Equipment in Exhibit A under your Purchase Agreement. These pieces of equipment are provided to ease the burden of the Buyer in trying to find equipment that is compatible with ASD's equipment. Buyer should consult with the original manufacturer or supplier for warranty information for these pieces. ASD will make every effort to facilitate contact between the Buyer and the original manufacturer or supplier. Examples of this type of equipment include, but are not limited to, electronic

controllers, boilers, grain separators, chillers, agitators, pumps, mixers, thermometers, sensors, gauges, meters, valves, and seals.

V. Basic Supply Information

A. Steam supply

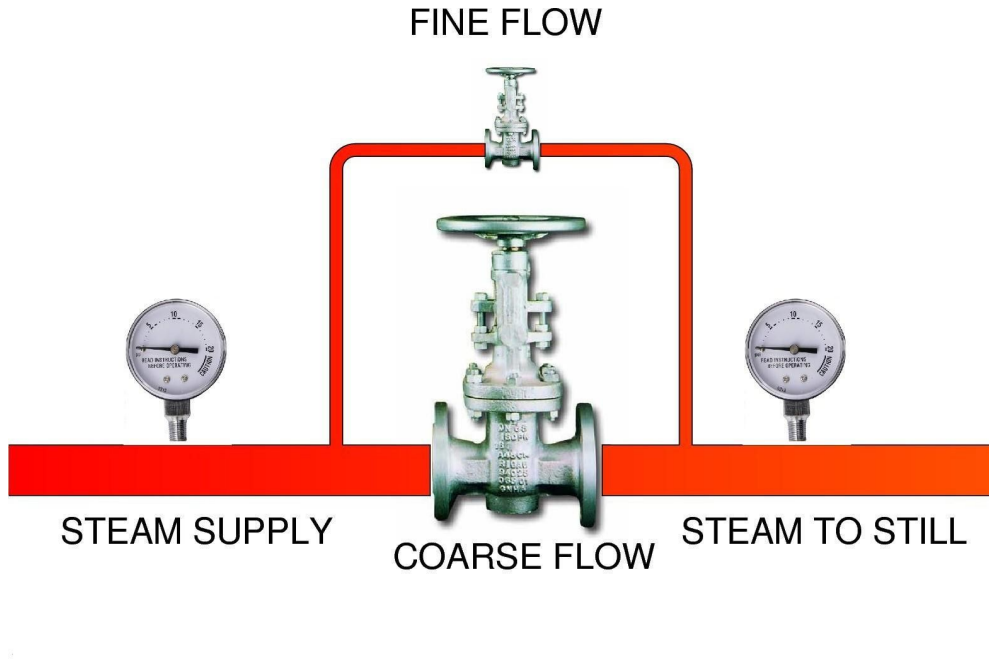
In order for maximum usability of your system you will need a finite control of steam flow. There will be 2 main modes or settings you will use for steam control.

Wide open – max steam flow for initial heat up only. Once your kettle contents come to a boil or at the point where they start off gassing ethanol vapour, this heat input needs to be decreased.

Our systems are designed for a 1 hour heat up when **1 lb/hr of steam at 15 psi is applied for each gallon of liquid charging the still**. Our stills are capable of taking much higher steam input than this in order to speed up heat times. At this boil point you will need to dramatically reduce the heat input of the still. Under normal applications this will be 1/2 or 1/3 of full. In cases with increased steam input it will be significantly less.

In order to have maximum tune-ability of heat input a dual parallel valve system is the preferred method of controlling steam flow. Using High Ratio turn Valves for Fine control is not required but highly recommended.

One larger high ratio gate valve to control gross steam flow, this will be of the same diameter as the steam supply piping. Second valve in parallel will be a smaller high ratio turn gate valve, 1/2" for 60-150 gallon system, 3/4" for 300-450 gallon systems and 1" for larger. The smaller of the two valves is for fine steam control. See diagram below:

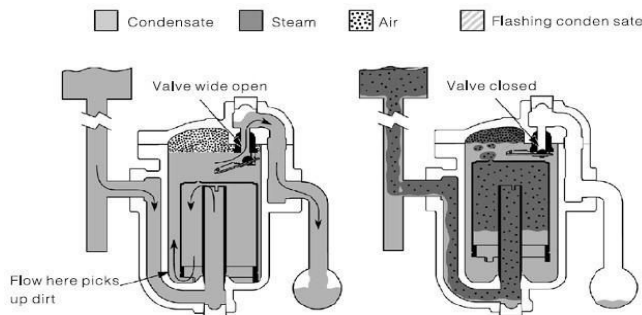


Steam trap/Condensate return.

Because the volume of liquid condensing out is much smaller than the steam being supplied, you can use much smaller diameter condensate trap and piping, than on the input side. Be sure your steam professional sizes your trap to handle the lb/hr steam flow you will be supplying your still.

Minimum 1 lb/hr steam (and condensate output) for every gallon of capacity

Inverted Bucket trap style condensate return. Without going into a great deal of detail, this is the style of trap that works with our systems. There are other, less expensive options for condensate traps, however all have their flaws and shortcomings that make them unsuitable for this application. It is possible to use another trap type successfully, however you WILL have problems eventually.



Steam systems

Most low pressure steam boiler systems will be suitable to supply steam for our distillation

systems.

Basic parts being the boiler itself, make up water reservoir and pump/condensate return. There are many heat sources for these boilers, including Natural Gas, Electricity, and Propane.

One component that seems to be missing on most steam piping setups is a vacuum relief at the highest point in the system. This is an inexpensive part to add that will significantly reduce or eliminate stress from your life at some point.



B. Electric Needs for Bain Marie Style (non-steam powered) Stills

Some smaller systems (30gl to 150gl sizes) may also be run on electric elements instead of steam power. Heating elements for these units can be purchased at any major home supply store.

Our systems are designed for a 1 hour heat up when you have 1,000btus of power per each gallon of liquid to be heated. One 1,000 btus will equal .293kw.

150 Gallon System will need 44 kilowatts. (6 heating elements, not supplied)

75 Gallon System will need 22 kilowatts. (3 heating elements, not supplied)

60 Gallon System will need 17.6 Kilowatts. (3 heating elements, not supplied)

C. Cooling water

Your distillation system will need cooling water for your output condenser and possibly for one or more dephlegmator. There are many ways of doing this I will touch on a few examples.

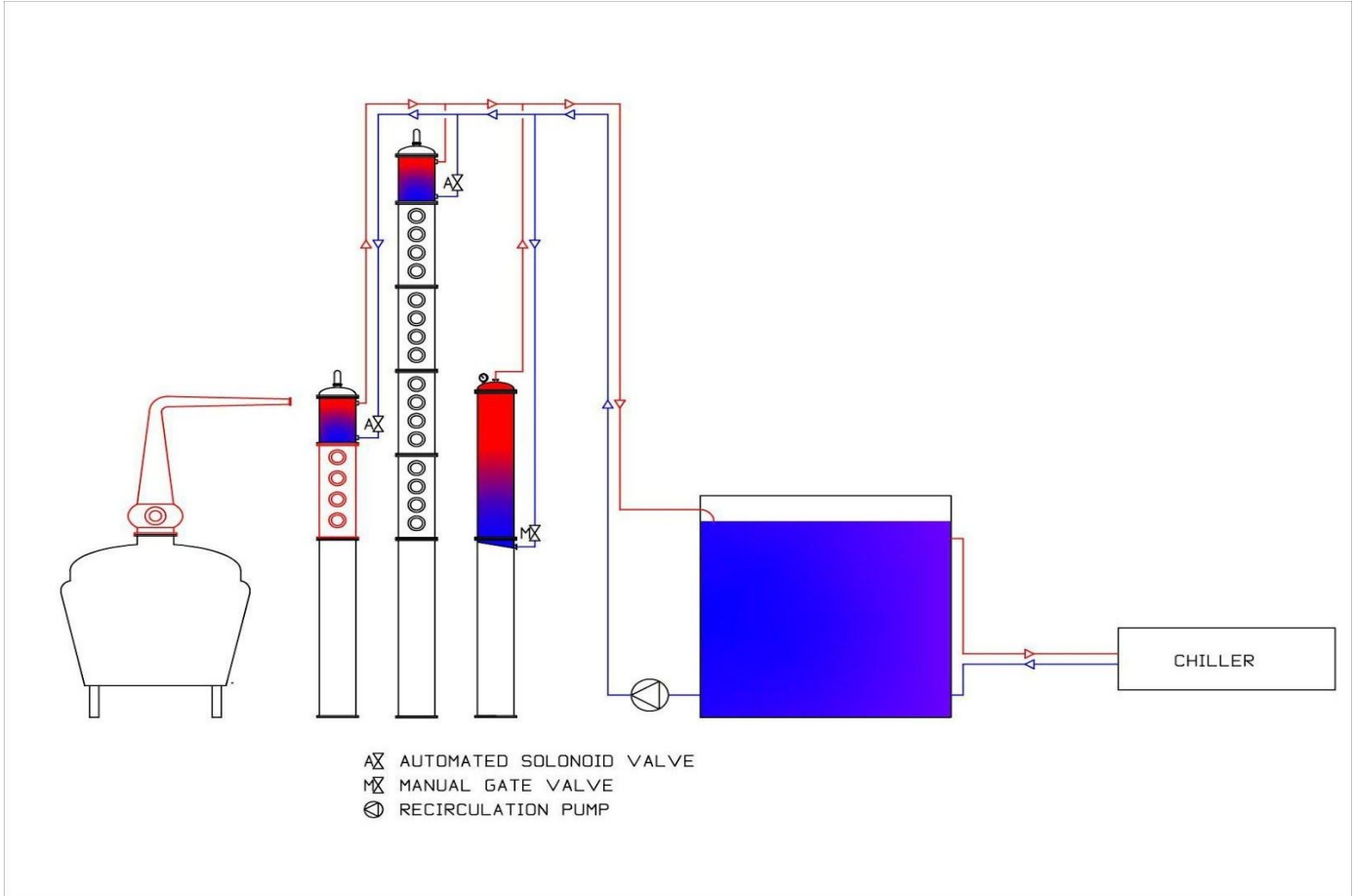
Cooling water reservoir

We recommend a cooling water reservoir 3-4x the size of your still. In many areas this would be sufficient to cool your still with just passive cooling of the reservoir. However come climates are warmer than others and some seasons as well. Active cooling to stabilize cooling temps is

ideal, even in cool weather and climates just for the sake of repeatability.

Mash cooling. Again the 3-4x sizing ratio is ideal for mash cooling, active chilling is highly recommended, Chill reservoir down as low as possible (but not freezing) overnight before mashing for maximum btu extraction. When distilling you will not want the reservoir this cold, the cold water will play havoc with trying to keep the delicate balance of the distillation system.

Chiller Sizing: Minimum ideal is 1/10 the BTU capability as your steam input.

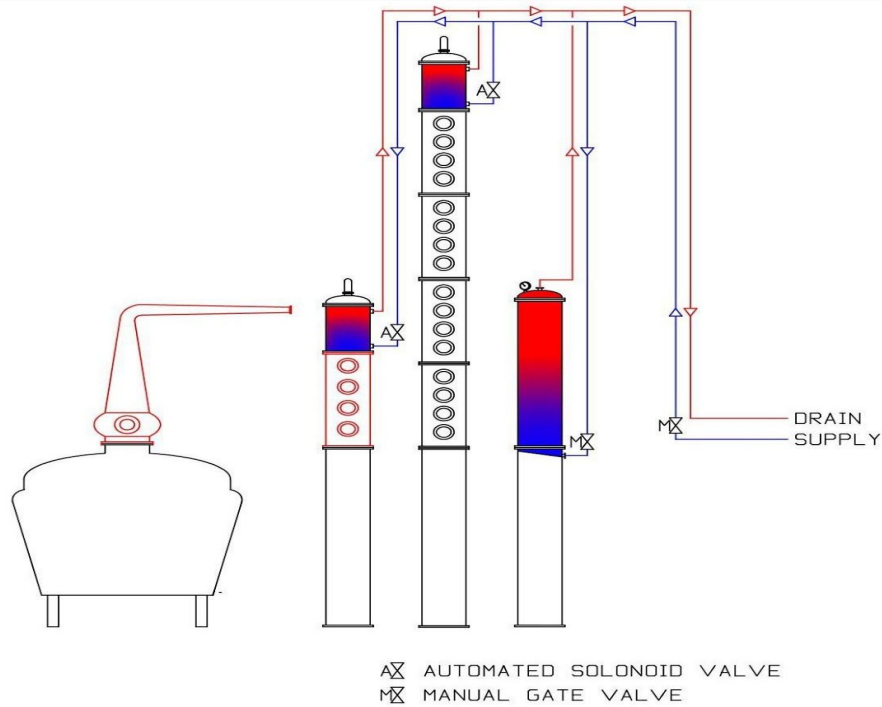


Cooling with City/Utility Water

City water is usually provided at 40psi+ as high as 100psi. City Water is not recommended, but if you must, flowing to a reservoir first then pumping with a low pressure pump is the best method to use.

If you absolutely must plumb direct to your city water system, a pressure regulator reducing to below 10psi is best, at minimum a gate valve regulating flow of the supply water to reduce flow down to a reasonable level for cooling usage.

Basic Cooling System Setup for Direct City Water Hookup



How to calculate minimum cooling water reservoir size, for crash cooling mash.

Assumptions:

- you are using an ASD or similar heat exchanger for cooling your mash.
- you are using chilled (or at least relatively cold) water for crash cooling
- you are recirculating both mash and cooling water.
- mash vessel sizing is between 150 and 1200 gallons

Please fill out below (pencil is best for corrections)

Step 1.

Mash starting temp (hot) Subtract Mash finish temp (Pitching) = Delta T -Mash

_____ (F) - _____ (F) = _____ (F)
(to step 3)

Step 2.

Mash finish temp (Pitching) Subtract Cooling water temp (Cold) = Delta T -Cooling

_____ (F) - _____ (F) = _____ (F)
(to step 4)

Step 3.

Delta T -Mash Multiply Mash Volume (gallons) = Latent Heat Load

_____ (F) x _____ (G) = _____
(to step 4)

Step 4.

Latent Heat Load Divide Delta T -Cooling = Cooling Volume

_____ / _____ (F) = _____ (G)
(to step 5)

Step 5. - Correct for Inefficiency

Cooling Volume Multiply Correction Factor = Minimum Vessel Volume

_____ X 1.2 = _____ (G)

D. Electrical

Your distillation system will need to be connected to electrical supply. Your agitator and CIP pump require a 220v 3 phase supply, 1100 to 2200W for each motor. The most common size pump or agitator motor used is 1500W or 2 horsepower. It will be most likely you do not have direct access to 3 phase power, there is a simple solution to this issue:

A Variable Frequency Drive.

This is a device that takes a standard 60hz power signal and creates a new supply at an adjustable frequency.

Because 3 phase motors speed is locked to the input frequency a VFD will give you the ability to change the speed the motor spins at without changing its horsepower output. Many of these units are set up for a single phase input, and create their own 3 phase signal. Making it possible to run your 3 phase agitator or CIP pump without a bringing in a new 3 phase supply.

If you have 3 phase 208-220v power at your facility you can connect these motors up with a simple on/off switch. However, the ability to “Tune” your agitator and CIP speeds you will find very helpful.

Low Voltage

There are a number of low voltage accessories or controls that can be used on your still. These will be supplied by another manufacturer through us, and should come with their own instructions.

VI. Running Procedures

First step is to establish what type of run you intend to do. As procedure will be different for different run types. I will endeavour to cover the most common types, Starting with simplest to more complex.

A. Stripping Run (1st runs) & Potstill Mode (2nd or more runs)Operation

a. Order of operation:

- i. Close all valves.
 1. Check drain valve, install and or close as necessary.
 2. Check to make sure that the CIP valve is closed. If not, close as necessary.
 3. If you have additional columns or gin basket, Check and close column drain back lines.
 4. If you have additional columns or gin basket, set 3 way valves and isolation valves to bypass.
 5. Check and close all valves/ accessories on kettle top.
- ii. Establish max fill point. Should be below the Manway. Do not fill above the bottom of the Manway.
 1. With a stripping run you can potentially fill to bottom of Manway.
 2. Is this recipe particularly foamy? Reduce volume to accommodate.
- iii. Begin Filling kettle, double check drain valve and CIP valve for leakage.
- iv. Turn on water supply to product condenser. Experience will tell you what flow rate is best, but start high for safety.
- v. Apply steam.
- vi. Watch for temp rise, you can feel vapor pushing up your potstill head/column with transferred heat. Using an IR thermometer can give you same results without chance of burning yourself.
- vii. Once vapor reaches product condenser, modulate heat for best throughput and product cooling.
 1. Low wines should come out cool through the product condenser.
 2. **ANY sign** of steam out of the parrot, reduce heat input.
- viii. Collect low wines down to 10% abv or whatever point you establish as protocol for stripping runs; or 130-160 proof for 2nd runs (finishing runs for whiskey/rum, ect).
- ix. Begin **Shutdown Procedure**

B. Spirit Run With Columns

a. Order of operation:

- i. Close all valves.
 1. Check drain valve, install and or close as necessary.
 2. Check to make sure that the CIP valve is closed. If not, close as necessary.
 3. If you have additional columns or gin basket, Check and close column drain back lines.
 4. If you have additional columns or gin basket, set 3 way valves and isolation valves to bypass.
 5. Close all valves on columns not in use.
 6. Check and close all valves/ accessories on kettle top.
- ii. Establish max fill point.
 1. With a spirit run, identify the column drain return into the pot. Your max fill line should be no higher than 2” below this return point, or else you risk flooding the column bottoms with low wines.
 2. Is this recipe particularly foamy? Reduce volume to accommodate
- iii. Begin Filling kettle, double check drain valve and CIP valve for leakage.
- iv. Turn on water supply to product condenser and **Dephlegmator(s)**. Experience will tell you what flow rate is best, but start high for safety.
- v. Turn on Reflux control system.
 1. Set dephleg temps to established start up temps 150 F or 56 C is typical safe temp for stacking plates, *Multiple columns*: set last active column to this safe temp and all others to run temp (170F or 76C)
 2. Set alarm to sound (if applicable) when vapor temp in last active column reaches 120F or 40C
- vi. Apply steam
- vii. Once alarm sounds, begin to modulate heat as to not push past **dephlegmator**. If product comes through to the parrot, continue to reduce heat until this stops.
- viii. Allow plates to fill, adjust temps on secondary and tertiary column dephleg controls to aid plate filling.
- ix. Once plates are full, adjust end column **dephlegmator** temp to begin heads draw. 160F or 66C
- x. At this point you will open the column drain back lines. Start with end most column, and work back towards pot, allow 1-2 minutes between opening each valve.
- xi. Collect heads into a **separate** vessel, or as determined by your protocol.
- xii. Once heads draw is complete adjust **dephlegmator** temp of end column to 170F or 76C and begin hearts extraction.

- xiii.** Adjust end column dephleg temp to control output speed and output proof. You may wish to add additional heat at this point
- xiv.** Adjust secondary tertiary dephleg controls within a few degrees of vapor temp, as required to keep plates full but no more.
- xv.** As you progress through the run, you may need to adjust temps 3-4 times and or increase heat input. This is normal and encouraged, but watch for plates flooding, **particularly** bottom most plates in a column. This is a sign of too much heat input.
- xvi.** As you progress towards tails, you will notice a dramatic increase in temperature in the vapor and a decrease in proof on your output. Make the transition to tails collection as established by experience and or company **protocol**.
- xvii.** Once finished collecting spirit you will want to begin **Shutdown Procedure**.

C. Shutdown procedure

- a. Order of Operation
 - i. Shut off steam.
 - ii. Wait until boiling on plates stops completely
 - iii. Check for Pressure
 - 1. Crack open manual relief valve on postill manifold, check for residual pressure.
 - 2. Use manual relief valve to check occasionally for pressure to subside.
 - iv. Once no pressure can be detected visually and audibly open manual valve and allow to sit.
 - v. Open all column drain valves
 - vi. If your sanitary sewer is designed to handle hot spent wash then you can proceed with draining the kettle now, or, open manway and allow to cool overnight and drain next day.
 - vii. At this point you can fire up for a new stripping/spirit run or begin a **Clean In Place** cycle.

VII. Cleaning

A. Surface Cleaning

- a. Copper: We recommend Wright's Copper Cream for copper surfaces outside the kettle and vapor path.
- b. Stainless: We recommend Formula 409 Stone and Steel Cleaner for Stainless Steel surfaces.

B. Internal Cleaning

a. Backfilling

- i. A quick way to clean between runs of the same product is to backfill the condenser with water all the way back through the vapor path. This will help keep buildup down and affecting your flavor profile.

b. CIP

- i. CIP stands for Clean In Place and allows an operator to clean the interior of the system without the need for scrubbing and getting into the nooks and crannies.
- ii. ASD batch Systems are fitted with a CIP system with a cleaning ball in every vessel and on every plate. Our systems use the kettle, or pot, as a chemical holding vessel and pumps out of the kettle throughout the system. You may use any chemical cleaning agent you wish, although we recommend a PBW solution. We also recommend a second cycle using an Acid #5 solution. Be sure to follow the instructions provided with your cleaning agent for the proper solution mix.
- iii. The CIP should be run at least once per month and between runs of different products, to remove the possibility flavor issues from your previous run.
- iv. **Clean in Place System Operation**
 1. Using hose with spray nozzle, wash out any loose build up from kettle.
 2. Close drain.
 3. Fill kettle 1/3 full of water/PBW solution as recommended on the package.
 4. Turn on steam to kettle and heat solution.
 5. Using a long handled soft bristle manual scrub brush, scrub any residual buildup on kettle interior and with soft cloth clean exterior.
 6. Open CIP valve, open control valve to CIP ball in kettle, close manway.
 7. Turn on CIP pump and allow to circulate.
 8. Cycle through all CIP control zones, recommend 10 minutes for each zone, per run between cleanings (3 runs, 30 minutes per zone) pay particular attention to the kettle and 1st zone of copper column the vapor would pass through in a typical distillation cycle. These

- areas will take the brunt of abuse cleaning the spirit.
9. Flooding columns with cleaning solution is beneficial to get all surface areas. Experiment with opening and closing column drain for best results.
 10. For Cleaning after a gin run, cycle for an hour minimum on all engaged sections.
 11. Shut off steam.
 12. Drain PBW solution.
 13. Rinse kettle and fill 1/3 with clean water, cycle 2-5 minutes per section
 14. Drain
 15. Fill kettle 1/3 with water and acid solution (we recommend star sans Acid #5) following instructions on package.
 16. Cycle as before.
 17. Drain, Fill 1/3 with water.
 18. Rinse 4-5 minutes per section.
 19. Drain and refill 1/3 of the kettle with water.
 20. Final rinse 2-5 minutes per section.
 21. Turn off CIP, Drain.

VIII. FAQ's

A. How do I get pricing and more information?

- a. Email our Sales Manager at sales@artisanstilldesign.com and he will forward you to your area Sales Representative.
- b. All our sales are done through an ASD Sales Representative. These Reps are all distillers themselves and run their own distilleries. Many of them are award winning distillers and all of them have had years of experience in the beverage industry.
- c. Also, check out our website, www.artisanstilldesign.com for more materials, photos, and other information.

B. Are you "American Made"?

- a. Yes. Our 30,000 sqf facility in Mobile, Alabama is home to the ASD production line. From welding, bending, polishing, and cutting to assembly and testing, everything for your system is completed in Mobile. We also try to source all our parts, supplies, and equipment from the Mobile area. Like a good farm to table whiskey, we try and make our systems as local as possible.
- b. We've sunk an incredible investment into bringing as much fabrication in house as possible. We're proud to say that and hope your will respect that, also!
- c. We also have several partners that can help us if we need something done that we just can't do in house.

C. Can you do custom designs?

- a. Yes. Our Production Team will design, source, and build almost any type of system you may need in your distillery. From producing complete one-off specialty stills to making modifications to existing designs, Artisan Still Design is happy to talk with you about making your equipment or making it better. We've built hot liquor tanks, wort chillers, grain handling and storing equipment, custom stills, specialty cookers, and even large continuous column systems that will handle tens of thousands of gallons of mash per day. If you need it for your distillery, we can design and build it to your specifications.

D. This is a big investment. Why should I choose Artisan Still Design?

- a. **Excellent Customer Service:** All of our Sales Representatives are craftsmen themselves. They are distillers and distillery owners that run Artisan systems in their own distilleries. Because of their backgrounds, they value the importance of providing excellent customer service and understand the trials of running your own distillery. Your Sales Rep will not only help you purchase your still, they'll be an immensely valuable resource to you and your distillery. They'll help you design your whole system, oversee installation, schedule training, schedule warranty repairs, and generally keep you happy for years to come. They want to keep you as happy as they were when they purchased their first Artisan system.
- b. **Quality Craftsmanship:** When you look at an Artisan still, you can see the passion, dedication, and hours of work that went into crafting it. Each Artisan still is literally a piece of art. Not only are they showpieces; they are also highly functional. Our pieces are so respected that they are being used as centerpieces for over a hundred distilleries around the world.
- c. **Minimal Lead Times:** Our lead times are the best in the industry. Most other distillation equipment manufacturers have 12-18 month lead times. Ours is a speedy 6-9 months, and we are working to reduce this even further. We also work to get serial numbers out early so you can begin your TTB paperwork prior to delivery.
- d. **Custom Designs:** Each system is put together for the individual distillery. Even our base models are tweaked for each customer, depending on his or her needs and wants. Whether it's a minor adjustment or major design change, we will ensure that your needs are met.
- e. **Competitive Pricing:** No one can beat our pricing while still offering you peace of mind, quality craftsmanship, beautiful equipment, ongoing support, and functionality. A distillation system is a major investment and not one to take lightly. We work very hard to provide systems that you will find to be beautiful, practical, of the highest quality, worth your investment, and that will last you a lifetime.
- f. **Trade-in Value:** We'll even accept your used ASD system as a trade in on a new system. Values depend on condition, size, ect., and you'll get a good down payment on your next system.

E. What are your lead times?

- a. Whereas most of the manufacturers in the US have a 12-18 month lead time, our is a speedy 6-9 months. We are always working to reduce this lead time, but due to the volume of production and dedication to quality, we won't rush out a system before it's ready. We do offer an expedited program, which is a "front of the line" service, and will work to decrease the lead time for these customers. But, we will not promise or guarantee a particular date, as things happen! We simply won't rush a job at the expense of the quality.

F. What is your sales/ordering procedure?

- a. Contact Us at sales@artisanstilldesign.com or fill out the quote request form on our website.
- b. Your Area Sales Representative will contact you to either provide a quote or help you narrow down your options.
- c. Once you've decided on a system, configuration, and other equipment, you'll be presented with a quote.
- d. Once you are ready to buy, you'll place your order.
 - i. Sign Purchase Agreement; and
 - ii. Send in 1st Deposit by wire transfer.
- e. Once we have payment and the signed Purchase Agreement, we will begin your System Build.
- f. Once your build is nearing completion, you'll be sent an invoice for your Second Payment.
- g. Once that payment has been made, your system will enter Quality Control, Finishing, and final Testing.
- h. Once your system has completed testing, you'll be sent an invoice for the Third and final Payment.
- i. Once your final payment has been received, we'll schedule your system for shipping.
- j. Once we have a delivery date, your Sales Representative will schedule a time to come to your distillery to unbox and assemble your system. Please see our Operations Manual for your requirements prior to the Sales Representative's visit.
- k. Once Assembled and completely hooked up by your team, the Sales Representative will train you in the operation and safety of your new system.

G. Do I need Permits?

- a. Yes there are many permits required to start a new distillery depending on where you are located. Besides the federal permitting with the Alcohol and Tobacco Tax and Trade Bureau (TTB), most states and local jurisdictions require permitting of some sort. Please consult with an industry consultant or your legal counsel.

H. Do you offer any type of warranty or support?

- a. Yes. We offer a (1) year limited warranty. We are always available by email for technical support. Your Sales Representative will be your first contact for

warranty issues and general service/operation questions. Our warranty is available to examine in our Operations Manual. It is located on our website or through one of our Sale Representatives.

I. Do you offer any type of consulting?

- a. Yes. At Artisan Still Design, we don't just sell you equipment, we can provide you with the help to begin making a quality product. Our team consists of industry experts, each of which have been in the industry over ten years and most run their own distilleries. We offer several consulting packages, from a Basic Consulting Package to a Full Consulting Package. We can help you with everything from Permitting, distillery startup, to product development. Contact your Sales Representative for more information.

J. Will someone from ASD come and assemble the equipment?

- a. Yes. Include in your purchase is basic assembly/installation. However, we cannot hook up the system to utilities. Please see our Basic Operation Manual for more information.

K. Will Someone from ASD train me on how to operate the equipment?

- a. Yes. Artisan offers several training opportunities. With each distillation system purchase, we will provide on-site training for you and your staff in the operation of your equipment. Artisan also offers several opportunities throughout the year for a more formal training program.
- b. Artisan holds an annual training course at their Mobile, Alabama production facility and several sponsored courses hosted by Artisan Distilleries throughout the year. We believe your ability to properly run our systems will help you produce superior products. Because of this, we hope you will take advantage of one of our courses before running the equipment.
- c. We also hope you will return periodically for refresher courses and other courses that may peak your interest.

L. Do you Finance Equipment directly?

- a. No we do not personally finance any purchase, however, there are several leasing companies that are eager to lease to distilleries or that can provide traditional financing.
- b. Our Partner, Boston Capital Leasing, now offers leasing and financing options to help you manage your capital and potential payments. Ask your Sales Rep or visit www.bclspirits.com for more details.

M. What are your payment terms?

- a. For batch and small continuous systems we offer
 - i. 40% down, 30% prior to finishing and testing, and 30% prior to shipping;
or
 - ii. 1/2 down; 1/2 prior to shipping; or
 - iii. Full payment up front.

iv. For larger custom systems, terms may vary.

N. Do you accept credit cards?

- a. We only accept wire transfers for payments over \$5,000. When you purchase a system, you will be provided with our bank wire information. For equipment less than \$5,000, we will accept cash or checks.

O. Do you provide tours to the public?

- a. Not at this time. Our facility is a working distillery and fabrication shop and we only open the floor to industry professionals.

P. Do you provide tours to distillery operators/potential customers?

- a. Yes. If you are in the market for a system, we'd be happy to show you around. Please contact info@artisanstilldesign.com to arrange an appointment.

Q. How much copper is really needed?

- a. Copper provides an essential chemical reaction, especially at lower proofs, that removes sulfides while the alcohol is in vapor form.
- b. Our systems are designed to give you the needed amount of copper for any distilled product. We can always add more copper to your system for a premium, but it is not necessarily needed.

R. How much capacity do I need?

- a. This is a tough questions, as it deals with the amount you wish to produce and the amount you think you can sell in a given amount of time. There are many assumptions involved in this calculation, such as the number of times you wish to run the system each day, week, or month, your average ABV per mash, the number of bottle or cases you wish to produce each month, do you want to start out small and upgrade later, do you have access to capital now that you may not have in a year or two, and so on. Your Sales Rep can walk you through this minefield and help you make a determination on what size system you should start with. There's no hard or fast rule on sizing....it will depend on your particular circumstance and goals.

S. How thick should a still's walls be?

- a. At ASD, we pride ourselves in producing products with the highest wall thicknesses available. The thicker your kettle and column walls are, the longer the system will last.
- b. Our systems have an estimated lifespan of 50+ years, if they are maintained and treated with respect.
- c. Most still manufacturers have a wall thickness of 2mm. Our thinnest wall thickness is 3mm and our average, depending on application, is 5mm.

T. Do I need a batch or continuous system?

- a. A batch system is a heated pot, normally heated with a steam jacket, internal pipe

coil, or electric bain marie system. Fermented beer or wort is charged (placed) into the pot. It is heated via the steam jacket, coil, or heating elements. The alcohol in the beer is boiled over as vapor and condensed into distillate. The slower and cooler that process is performed, the higher the proof. 5 to 1000 gallons is the best size for batches. A batch system makes all products well. It is best for Brandy, Gin, Whiskey, Rum, Vodka, and similar products.

- i. Some advantages of a batch system is the ability to run different products, long or short runs, very operator friendly, easy to stop and restart runs. Best suited if making different types of products, experimentation, and small batch products. Also fits into low clearance ceilings.
 - ii. Some disadvantages are that the final product is based on the operator making consistent heads, hearts and tails cuts. It can also be labor intensive to run at times.
- b. A continuous system is a vertical column, with 16 to 20 plates, heated with live steam. The fermented beer or wort is fed in the top at a constant rate. The alcohol in the beer is boiled over as vapor and condensed into distillate. The slop, or spent grain, is removed at a constant rate from the bottom. The distillate continues on to get distilled again in a finishing column. Distillate is produced consistently with exceptional quality with no need to make heads, hearts, and tails cuts. 750 gallons and up are the best size for batches. It is mainly for mid-proof products and is excellent for bourbon, whiskey, and rum. We also have a system that produces high quality GNS (NGS) or vodka.
- i. There are several advantages to using a continuous system. Products that go into the barrel to age is where continuous distillation really excels, because of its ability to distill products with great consistency 24/7 without shutting down. Faster more efficient production requires less labor. Also is great for stripping low wines paired with a batch still to make vodka and gin as well.
 - ii. The disadvantages are that it requires 22' of ceiling height or more. It is not well suited for small batches. And, it is more difficult to run when first starting up, and requires more skill and knowledge.

U. What is a CIP system?

- a. CIP stands for Clean In Place and allows an operator to clean the interior of the system without the need for scrubbing and getting into the nooks and crannies.
- b. ASD batch Systems are fitted with a CIP system with a cleaning ball in every vessel and on every plate. Our systems use the kettle, or pot, as a chemical holding vessel and pumps out of the kettle throughout the system. You may use any chemical cleaning agent you wish, although we recommend a PBW solution. We also recommend a second cycle using an Acid #5 solution. Be sure to follow the instructions provided with your cleaning agent for the proper solution mix.
- c. The CIP should be run at least once per month and between runs of different products, to remove the possibility flavor issues from your previous run.