



CIP-30 Brewer's Multi-Tool

3:1 Grant/Keg Washer/CIP Basin



Equipment Description

This equipment is a three-purpose auxiliary tank equipped with lockable casters. The three functions of the unit are as follows: Grant, Single Keg Washer, and Heated CIP Reservoir (element sold separately). The unit is Tom Hennessy's idea, and will improve on his do-it-yourself keg cleaner manifold design by adding safety features like pressure and flow regulators, as well as a fully plumbed manifold that can be operated completely by adjusting butterfly valves. This product is intended to serve smaller brewpubs who may be washing on average only 5-10 kegs in one session and who do not need or want a \$10,000 keg washer. If you utilize serving tanks in the cold room, then your on-premise (plus any light self-distribution) keg inventory is at a

minimum, so you don't have many kegs to wash on a weekly or every other week basis. It also adds lots of functionality to the standard 12 or 20 gallon Forgeworks Brewer's Grant, including a 30gallon capacity.

With limited keg inventory it is assumed beer will not be required to sit in kegs for extended periods of time, so the risk of any negative impacts on the finished beer by being stored in a well washed but not sanitized keg are minimal. However if the washed kegs will sit for a long time before filling, or if you want to distribute kegs outside of your brewery you may want to add a sanitation cycle.

Just to emphasize the purpose of this primitive, single keg, single cycle keg washer, it is meant for a brewery that utilizes serving tanks, keeps a small inventory of kegs, has few kegs to clean, and is not interested in spending 8-10K on an automated keg washer. Its 3:1 Multi-purpose characteristics makes your expenditure on this equipment an attractive value. We include all the parts needed to put the keg cleaning function into service, you just provide access to hot water, CO2, and centrifugal pump.

Because this unit has casters, it can be easily moved into position for a CIP Cycle wherever your tanks are positioned around the brewery, or where your Kegs to be cleaned are stored.

The Wort Grant has a shape designed to greatly reduce the vortex effect when used for remote CIP.

The grant lid and keg rack are removable. A durable back strap on the keg rack features a strap connection in case of washing Sixtels. This secures the Sixtel during the washing procedures. Utilize a 2-3' cam strap for this function (not included), but Home Depot has it!

FUNCTIONS

For all operations that do not utilize an Electric Immersion Element, cap the Element Port with a 2" Blind and Tri-Clamp.

Grant

-Inlet: Plumbed from mash tun drain (gravity feed)

-Outlet: plumbed back to mash tun vorlauf port, later to kettle inlet

At Forgeworks, we are big believers in using grants. There are a lot of good reasons, no real disadvantages. We recommend them because they eliminate the risk of pulling a vacuum under the false floor of the mash tun, they allow you to do some filtering of the wort during vorlauf with a basic mesh strainer set in front of the inlet, and they allow you to get eyes on the wort without needing in-line sight glasses. Use of a grant, can open up the opportunity to eliminate the need for a VFD on your pump cart, or Flow Meter. When a brewery is coming together on a tight budget, and you are needing to make crucial decisions on what equipment you can start with, and what can be added later, investing in a grant is a solid decision.

Our grants have evolved over the years, we used to buy used Half Kegs and cut them in half, rigorously clean them up, and install a couple ports....but those were not large enough for ease of use and low to the ground (no legs), they were \$300. Then we came out with the \$1800 12 Gallon Grant, which solved the problem of the usable height issue and capacity as a grant for all the system sizes we make, but we received comments that if you wanted to use it as a remote CIP unit, the basin volume was too small for 7-15bbl brewhouses. This was great feedback, but it also was combined with the fact we didn't offer a keg washer. As our first step toward better solutions, we came out with a 20Gallon grant, which is now our standard, solving the CIP basin issue. The 20 Gallon Grant is priced at \$2200 and serves two functions.

Single Keg-Manual Washer

NOTE: When using as a Keg Cleaner, the operator must be present and focused during the entire duration of time it takes to clean a Keg. There are no buttons to push and walk off, it is a manual system.

For many brewpubs, you don't have anyone washing 30 kegs in a day, and repeat that once a week, it's more like 5 kegs, maybe once a week, and the kegs are typically refilled a relatively short time, and stored inside the climate controlled brewery until filled. So the \$7,000-\$10,000 two-cycle (acid and sanitizer) keg washers that have an automated cleaning cycle seem a quite pricey for something you don't use all that often. That said, this new 4:1 piece of equipment was born out of all of that. A primitive but user-friendly piece of equipment, with four important functions.

Although this unit is capable of both cleaning cycles (rinse/acid and sanitizer), they are performed separately. The sanitizing cycle may not be needed given your breweries volume versus keg inventory and keg filling intervals. As stated above, running just the rinse-acid-rinse cycle would be appropriate if the cleaned and empty kegs are refilled in a short amount of time, and are stored inside the climate- controlled brewery. Should the sanitizer cycle be needed in the case of prolonged storage (inside or outside) of the kegs without refilling, you can do the rinse-acid-rinse cycle for your whole batch of kegs as usual but do not pressurize yet. Drain and rinse the keg washer basin and refill the basin with sanitizer solution. Sanitize the batch of already washed kegs and then pressurize as normal.

Keg Washing Features:

- Gas Backflow check system – so that hot water cannot accidentally get sent up the gas line towards the CO2 tank in the brewery
- Hot water inlet pressure regulator – so that if the keg outlet was not open, the keg could only fill with a max of 35 psi of water pressure
- Gas inlet pressure regulator, maximum of 25psi
- Keg rack on the keg washer unit to accept all sizes of kegs, and is removable for the other functions of the equipment.
- Keg rack is designed to hold kegs steady, preventing the keg from slipping off the rack horizontally, and vertically.

For the Keg Cleaning Function, access to a CO2 hose at the place where this equipment will be stationed during keg cleaning will be required. This unit is mounted to casters, thus can be easily moved around the brewery to perform its various functions

Keg Washing Steps:

1. Fill keg washer basin with hot water (120-140 deg) and Five Star Acid #6, at a dilution of 1 oz per gallon of water, 15gal total volume. Note: Acid #6 is formulated for use in CO2 environments, such as a dirty keg, so its the ideal agent for this purpose.
2. Tap keg with Sanke fitting, first ensuring both valves connected to Sanke fitting are closed
3. Invert keg onto keg washer (so it sits upside down). If a Sixtel, strap it to the back support
4. Direct gas end of Sanke fitting (keg outlet) to brewery floor drain. NOTE: certain steps of the cleaning process result in pressurized contents being released from the keg, so be sure the drain tube is properly oriented and secured.
5. Open both valves on Sanke fitting, releasing keg pressure and the remaining contents of the dirty keg.
6. Open hot water valve to rinse keg, 30 seconds of rinsing
7. Close hot water valve
8. Allow rinse water to drain from the keg. Throttle CO2 in valve to help push rinse water out of keg
9. After fully drained (you can hear gas spraying at the end), redirect the keg outlet/gas end of Sanke into the keg washer basin to complete CIP loop and recollect the acid solution as it drains out of the keg during the wash cycle.

10. With the pump outlet valve closed, open keg washer basin drain valve leading into pump. The basin drain valve can remain open for the duration of cleaning all kegs as the pump outlet valve will be used going forward.
11. Make sure the pump is primed before washing the first keg. (It should maintain prime for all subsequent kegs, but re-prime if needed).
12. Turn pump on
13. Open pump valve leading into manifold, throttle butterfly valve until manifold gauge reads 15 psi
14. Cycle CIP solution through keg for 3 mins – set timer
15. Shut pump power off and immediately close pump outlet valve to prevent loss of prime
16. Allow CIP solution to drain back into reservoir, throttle CO2 to push out all liquid
17. Redirect keg outlet to brewery floor drain
18. Perform 2 rinse cycles using the hot water-in, then a 5 second "burst rinse", followed by a 25 second extended rinse to rinse out all CIP solution, throttling CO2-in at the end of each rinse to push all liquid out of the keg
19. Optional – if a sanitizer cycle is needed, run all dirty kegs through steps 1-18 with acid solution, then repeat steps 9-17 with basin full of no-rinse sanitizer instead of the acid #6 solution. This step is recommended if kegs are to sit in an uncontrolled environment for long periods of time, but not necessary if they are consistently dispensing beer.
20. Close exhaust/gas valve on keg
21. Pressurize by opening CO2 in-valve so it is ready for counter-pressure filling. Pressurize the keg to a level approximately 3 PSI below the dispensing pressure of your serving vessel or brite tank (i.e. pressurize keg to 12 PSI if you dispense your serving vessel at a head pressure of 15 PSI).
22. Flip keg right side up to empty the liquid in the spear, allow to drain to bottom of keg for 5 seconds
23. Invert keg again, allowing liquid to drain back to the outlet
24. Throttle the Sanke gas valve (outlet of keg) to spray out remaining liquid inside. This results in an empty, pressurized keg. When throttling the outlet valve, only open for less than a second, you don't want to lose the pressure, just enough to spray out any remaining liquid
25. Remove Sanke fitting from the keg and spray the top with sanitizer solution
26. Apply a keg cap to identify it as clean and ready to accept beer
27. If washing a large quantity of kegs in a single session, periodically check that the acid solution remains at a suitable temperature and that it does not become overly dirty. Drain and remix acid solution as needed.

Here is a youtube demo of how this manifold works. Our Unit was designed from this concept, with the consultation of Tom Hennessy.

<https://www.youtube.com/watch?v=Bl6pxAV32t4&t=19s>

<https://www.youtube.com/watch?v=K6Mx0HHSr1E>

Setting up the Keg Washer Manifold

There are three 1-1/2" Tees that secure to the front of the Multi-Tool with Fixed/Welded on Tri-Clamps.

At the left will be the Water-In Assembly, in the Middle the Pressure Gauge Assembly, and at the right, the Gas-In Assembly. See photos below.

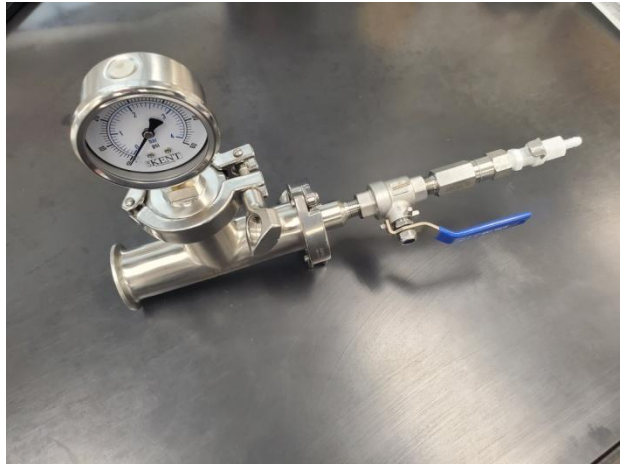


Figure 1 Water-In

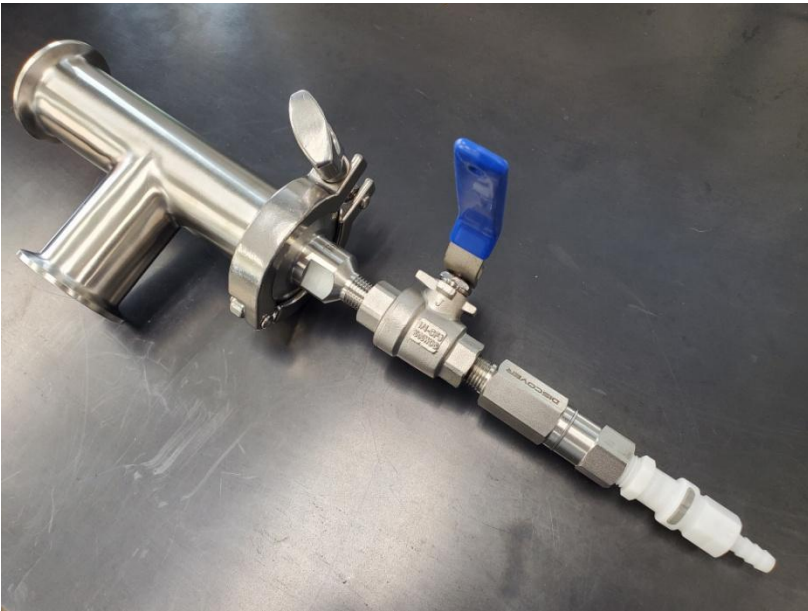


Figure 2 Gas-In

Here it is all put together





CIP Remote Reservoir

Use the Brewer's Multi-Tool as a Remote CIP reservoir, configure in-line with pump and vessel that needs to be cleaned. Add 105° or hotter Hot Water into the Brewer's Multi-Tool reservoir and mix in your CIP cleaning solution. 30 Gallon Capacity. You have the option to use an Electric Immersion Heating Element (Sold

Separately) during the CIP process, keeping the solution heated while cleaning multiple tanks. An Electric Immersion Element will fit up to a 2" Tri-Clamp Fitting. The tanks to be cleaned are typically "cold" or at least "colder" than the ideal temp for your CIP solution, so some of the temperature of the solution will be absorbed by the cooler tank, thus a heating element is used to maintain the desired temperature range. There are many suppliers of heating elements on the market. We recommend Glo-Quartz Electric Immersion Heating Elements, they are made to order in the USA.

Glo-Quartz

Contact: Mike McGinnes, 800-423-4078, mmcginnis@gloquartz.com
<https://www.gloquartz.com/>

Glo-Quartz Heating Element

Model # D2SB-35DD13-E2T1B

Description: 2" sani flange heater, 316 ss elements, 3.5 kw, 240 v, single ph, 13" immersion, nema 4 j-box, 60-250F SPST stat

Have your licensed/professional electrician wire the Electric Immersion Heating Element with a long extension cord (using Southwire Royal X/C 12 AWG SOOW E46194 NC 600V, or equivalent) , and similar plug, using electrical components appropriate power requirements detailed above.



