Forgeworks Barley Cracker for Breweries

Model: FWBC1200

The Forgeworks Barley Cracker is a Two Row Barley workhorse, designed specifically for the small professional brewery, 15bbl or smaller. With (2) fixed position 2”x10” Hardened Rollers, it’s a plug and play mill that will stay in tolerance for years. If brewing primarily Wheats and Ryes, this may not be the mill for you, however small grain bills of wheats and ryes is a go, or you can supplement with pre-cracked.

With the Forgeworks Mill, the crack of the grain results in husks largely intact, which is optimal to yield highest efficiencies from the starches. A crush comprised with a variety of particle sizes, as well as mostly intact hulls produce a solid compromise between a good flowing mash for the lauter (encouraged by intact hulls) and extraction from the enzymes via a finer crush. The mostly intact husks help create the required filtering component of the grain bed, and significantly help the mash flow smoothly for a good lauter, and reduces the probability of a stuck mash. A nice combination of fine and course grind produce the best extraction and flow for your lauter.

Advantages of having your own Barley Cracker:

-Increased Freshness
-You control the crack (crush) of the grain with consistency for your grain bill recipes
-Less risk of a stuck mash
-Less cost than buying pre-milled grain
-Consistency/predictability in your efficiencies
-Reduces your Grain Bill

Power Specifications of the Forgeworks Barley Cracker:

1 HP Baldor L5023A Explosion Proof Motor, 60HZ, Volts 115/230, AMPS 13/6.5 RPM 1725, PH1/Class B
13Amp@110, 6.5Amp @230, pulls approx. 9.5 under full load
Single Phase 110, can be wired to 220
Auger (not included) ¾ HP Auger Motor pulls 4.6 Amps, 1 HP Auger pulls 6.2amps

Dimensions: 30”x25”x37”
Weight: Industrial Duty at 225lbs, crated 48”x48”x42”
Grain Hopper Capacity: 79.8lbs (approx. 1.5 Sacks of Grain)
Throughput Capacity: 1200lbs/hr, Single Phase 1HP Baldor Explosion Proof Motor, 1725 RPMs
Fixed Position Rollers: (2) 2”x 10” Hardened Rollers

Malt Analysis, and Assessing the Barley Cracker's Output

Every Forgeworks Barley Cracker is tested, the grain is Assayed, and results recorded before leaving our shop. Our mills are calibrated to specs that according to research, achieve the best efficiencies and flow. This is based on a conveyance of reasonable length, 25' or less. Lengths 50' plus may require additional calibration before shipping to compensate for any additional break down of the grist during conveyance.

https://www.humboldtmfg.com/8in-sieves.html

Crush Testing with the 8" Humboldt Sieve Assay

Course: #14-1400 Microns, 0555", 1.4 Millimeters
Medium: #30 600 Microns, .0234", .60 Millimeters
Fine: #60 250 Microns, .0098", .25 Millimeters

60% is Target on Course for standard length conveyance runs
64% is Target on Course for longer conveyance runs

The #14 sieve would retain husk pieces, but let the grits and flour fall through. The #30 sieve would retain coarse grits while the #60 would retain the fine grits. Flour would fall through all the sieves and land in the pan.

Expected Yields bases on Sieve Analysis

	14	30	60	pan	Max Eff
Trouble Free	70-85	10-20	<10	<5	95%
Practical	45-55	25-50	<10	<7	98%
Industrial M	30-35	40-60	5-15	<10	100%
Industrial LT	30-35	40-55	5-15	<10	100%
MF	10-20	20-40	40-50	10-20	102%

The easiest analysis of your grain cracking operation is a simple visual examination. Making sure there are not any whole, un-cracked kernels, and only a limited amount of flour. It is beneficial for your brewery to have a set of sieve pans. These sieve pans allow you to measure and analyze the grind profile with a repeatable method. Your investment in these pans is very reasonable when you consider how much extract you can potentially leave behind or how much time you can save in the lauter tun with a proper grind.

You will also need a scale to measure your results and make your percentage calculations.

Here is a link to technical presentations provided by Briess Malt & Ingredients Co. , that contain helpful details and recommended grind profiles to assist you in optimizing the milling process. Via this link, click on the "Practical Milling for the Craft Brewer" presentation.

http://www.brewingwithbriess.com/Malting101/Technical_Presentations.htm

At Forgeworks, our sieves were purchased from Humboldt. They are pans rated for US Department of Agriculture specifications. If you purchase pans, you will also need a lid and a catch pan. For your grist analysis, you can shake the Sieve by hand, or there are machines available to do the shaking of the sieves for you.

To test your mill output, collect about a cup of malt as it falls from the mill. Don't scoop a cup out from a pile of milled malt as the smaller pieces will have already settled — sample your malt from the "stream" coming from the mill. Weigh each of the sieves, and the pan, when they are empty. Stack the sieves in a series progressing from the coarsest sieve on top to the finest on the bottom, and the pan underneath them. Pour the milled malt on the top sieve and add the cap. Shake the assembly for 3 minutes, rapping the whole thing on a hard surface a few times each minute. (Large breweries have dedicated mechanical shakers for this.) After the shaking, weigh each sieve again and subtract the weight of the

empty sieve to get the weight of the malt retained on each. Do this for the pan as well. Divide the weight of the malt in each sieve by the sum of all their weights to get the percentage weight retained on each screen and in the pan. Record these numbers to compare with later testing.

We test your mill before it ships with common Two-Row Malt. We insert a certain set of plates to achieve the optimum gap based on our Sieve results. However, since every brewery is different, Malt supplier, Moisture, and run length and type of the conveyance system, you may need some fine tuning of your mill. We ship the mill with the optimal spacing plates installed, but also include a kit to change to a smaller or larger set up plates, should you require an adjustment. If the plates provided are not tuning your crush the way you need it, we will send you larger or smaller plates to trade out.

Grist Conveyance

For Runs 25-50' with a maximum of one slight turn left or right, many of our customers have had success sourcing the Flex Auger 350 from Farmer Boy Ag. They provide a reasonably priced Flex-Auger System (approximately $1500 or less, and around $80-$100 in shipping). See model 350 via the link below. It can be wired for 110 or 220, but note that if wired for 220, the auger speed will increase significantly, and can promote further grinding of the grist over longer runs. It is likely best to wire 110. Included in the parts you will need, choose between a 6° or a 15° Unloader Wedge Fitting to achieve the correct initial angle for the height you need to achieve over a set distance. The Unloader Wedge Fitting mates up to our mounting configuration under the mill. Dan Manfair, a sales representative from Farmer Boy Ag will assist you in determining all the parts your will need, including whether or not you go with a 6° or 15° wedge.

Farmer Boy Ag
50 West Stoever Avenue
Meyerstown, PA 17067
http://www.farmerboyag.com/flex-augers-parts
Reference Model 350 (3.5" O.D.)

Farmer Boy Contact:
Dan Maulfair, Sales Representative
Email: danm@farmerboyag.com
Direct: 717-866-8248

Farmer Boy Ag Auger Installation Video by Tom Hennessy:
https://www.youtube.com/watch?v=RX2N6FNDFs4

Barley Cracker 1200 Customer List for Performance/Experience References
https://static1.squarespace.com/static/5a9e9942da02bcf47a068ed2/t/5c76d4ea24a694999f32fc5e/1551291627072/Forgeworks+Barley+Cracker+Customers.pdf

Farmer Boy Ag Model 350 Installation Manual
https://static1.squarespace.com/static/5a9e9942da02bcf47a068ed2/t/5c76b11aee6eb0340e9e39ba/1551282459221/Barley+Cracker+Specs+and+Information.pdf

For longer runs from input to offload, such as 50ft or more, and/or runs with multiple 45° or 90° turns, a chain and disk type conveyance system will provide the best results for minimizing additional break down of your crush. Farmer Boy Ag does make a chain and disk product, https://www.farmerboyag.com/Chain-Disk-Feed-Systems. There are also a few other brand options, such as Cable-Vey, or Chain-Vey, that offer a chain and disk conveyance product, and also have a focus in the brewing industry, and have been present at the Craft Brewers Conferences.
http://cablevey.com/cable-conveyors/four-inch-popular-conveyor/
https://www.mpechicago.com/chain-vey