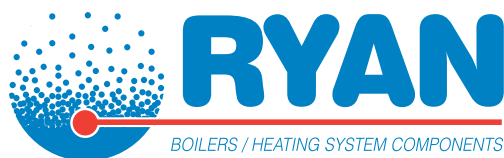


# Bryan vs. Cleaver Brooks Flexible Water Tube Boilers

1. Bryan has two downcomers. CB has only one downcomer on their boilers. With two downcomers Bryan Boilers have excellent internal circulation and will not be plagued by intermittent lockouts via the high temperature limits. CB claims they do not have circulation problems, but some Engineers who have had internal circulation problems were required to provide a circulating pump for the boilers after the job was completed. Another problem associated with this lack of internal circulation is that the boiler can develop hot spots in the heat exchanger. This will prematurely shorten the life expectancy of the heat exchanger.
2. Bryan's downcomers are located on the inside of the boiler skin. If asked to provide two downcomers CB's second downcomer will be external to the boiler. What does this mean? The downcomer will be at or above 180°F and exposed. Is it safe to have pipe at 180°F or greater, exposed?
3. To gain access to the burner head on a Bryan boiler, all one needs to do is pull one of the panels off of the side of the boiler. On GB you will have to disconnect the gas train, because the burner head is buried between two banks of tubes inside the boiler.
4. Bryan boilers only require access to one side of the boiler for tube removal. GB requires both sides accessible for tube removal.
5. Bryan Boilers do not have any refractory poured in the base of the boiler covering the lower drum. GB does have this condition and that refractory also covers the heat exchanger tubes. Therefore the refractory has to be chipped away before any tubes can be removed.
6. Bryan boilers are set up with easily removable panels on the tube replacement side. With GB you will need to strip the boiler down if you need to get inside for any reason. For GB tube removal, this means disconnecting the breeching and possible the gas train and burner. GB has a higher maintenance cost associated with their flex tube boiler.
7. Bryan boilers flexible tubes connect to the bottom of the upper drum and to the top of the lower drum, this configuration will prevent the flexing action of the boiler from loosening the tubes. GB tubes connect on the sides of both drums, which will allow the tubes to loosen in time, due to the expansion and contraction of the boiler.
8. If you wish to keep spare tubes in stock, Bryan has two tube styles in their boilers. GB has multiple tube styles in their boiler, increasing your spare parts cost. Everything on the GB boiler is proprietary; Bryan minimizes the amount of proprietary parts used on their boilers.
9. Bryan boilers tube thickness is **0.109 inches and 0.095 at the bends**. CB has 0.095 inch thick tubes and 0.080 at the bends.
10. Bryan Boilers carry a 25 Year Non-Prorated Warranty against Thermal Shock. So does CB, but they have not been building flex tube boilers for over 20 Years?
11. Because Bryan boilers headers are on the same side of the boiler, tube replacement is accomplished from the outside of the boiler (that is if the tubes ever need to be replaced, with proper water treatment the tubes should last for 30+ years). On CB you will have to climb into the boiler to replace tubes. This is considered a confined space and will require the appropriate confined space permits and paperwork.



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