

FERMENTERS

A fermenter is a bioreactor, used for industrial fermentation processes, in which an organism converts a carbohydrate into an alcohol and carbon dioxide or an organic acid. The organisms used are yeasts or bacteria under certain optimal conditions, like temperature, pH,

Food and pharmaceutical industries, in which fermenters are used, are focused on keeping their products safe during the manufacturing and supply chain. Therefore, each fermenter need to be cleaned and sterilized (CIP/SIP) after each batch or run. During this cleaning process – for which cleaning agents and steam are used – the temperature and pressure increases, while a vacuum is created when cooling down. It is of vital importance that the fermenter itself but also the chosen safety precautions are designed to withstand these temperatures and pressure fluctuations.

The cleaning process is not the only moment during the production cycle that induces a risk. Pressure increase can also happen during the fermentation process itself. Furthermore problems with process heating due to equipment failure (stirrer, cooling water jacket, ...) can be catastrophic, because temperature is one of the crucial aspects in the fermentation process. To avoid a complete rupture of the vessel, a pressure relief device is needed.



Picture courtesy of Criveller Group



Fike bursting discs are the preferred pressure relief device due to their fast response time and unobstructed opening. Due to the hygienic nature of the industries, safety precautions have to meet tough regulations. Fike has a whole range of sanitary bursting discs that meet these stringent criteria and comply with industry certifications, like EHEDG. Even quality controlled packaging with nitrogen purging is possible and our hygienic bursting discs are compatible with industry standard ferrules.

Given the nature of the fermenter content, Fike offers bursting discs which are suitable for both liquid and vapor service. These bursting discs are also vacuum resistant which is needed due to sterilization conditions and they can be installed flush-mounted to minimize the risk of contamination.

Fike's precision designed rupture disc offers a number of benefits. Installation is simple, there is no maintenance and it reduces the initial cost of the fermenter since its design pressure can be considerably lower, without sacrificing safety.