

HISTORY
of the
FLEXITALLIC GASKET COMPANY

The Flexitallic Gasket Company was organized in 1912 to produce gaskets for steam boilers--the big boilers used by electric power companies and by manufacturing plants in which electric current is generated. From the beginning the purpose of the Company was to manufacture a gasket based on an idea that was then wholly new.

The idea that was new in 1912 is still a major feature of our company's product, and much of our history is bound up with it. Mr. Henry Bohmer, Jr., the founder of the Flexitallic Gasket Company, believed, back in 1912, that the common gaskets then in use were not good enough. They were weak. They did not have the materials in them for long life. In those days, leakage was a problem even when the gaskets did not blow out. Boilers had to be shut down pretty often for cleaning and re-gasketing.

The Flexitallic idea was that gaskets should be strong and at the same time resilient. In other words, they should be able to hold steam, and at the same time they should be able to expand and contract. You know, boilers are made of metal, and metal expands when it is heated and contracts when it is cooled. For this reason, the gasket should be able to expand and contract in order to keep a tight seal. To illustrate, think of a straight piece of steel wire held between your thumb and forefinger. If something makes the thumb and forefinger move apart, the way heat makes boiler parts expand, this piece of wire can't follow along; and it becomes loose. Now, if we put a band in the wire, and then hold it between our thumb and forefinger, we can move the thumb and forefinger apart, but the wire will follow. If we move them together, the wire still follows.

Now that spring-like action of steel was the basic Flexitallic idea. We formed steel so that it would have a bend in it and then wound it round and round until we had a body of the right size. In between the plies we put ribbons of asbestos paper to make a good firm structure and then we fastened the ends of the wire so that the whole gasket would stay together. You will see more of such gaskets later on, and you will be given a more detailed explanation of what they are and how they work; but this brief explanation gives the underlying idea. We called these gaskets "Spiral-Wound" gaskets.

In the early days, boilers used to operate at about 200 pounds pressure. Now they operate at higher pressures. Four hundred pounds is common. Even 400 pounds is a lot of pressure to hold,

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and there are several plants that use over 1,000 pounds of pressure; one famous factory uses steam, protected by Flexitalllic Gaskets, generated at 1,340 pounds.

The rise in pressures has been gradual. The important point is that back in 1912, our company produced the gasket, the first of its kind, which was capable of holding the high pressures as well as the low.

We did not have easy going. Our idea was so new that engineers in industry did not hurry to adopt it. But, somehow, mostly by faith in the idea itself, the Company obtained customers, and the customers became regular users--they came back to us for more gaskets. The name "Flexitalllic" gradually became widely known in public utility plants and in the big industrial power stations.

During World War I, the U. S. Navy used our gaskets on boiler manholes. Manholes are big openings in boilers through which, as their name suggests, a man can crawl. Men to crawl inside of boilers, when the boilers are cold, of course, to do cleaning and repairing. The Navy ships in those days were operated at low pressures. There wasn't the need for our strong, resilient gaskets until some years after World War I. The boiler pressures were increased first on a few ships and later on many. It was really during the years from 1930 to 1940 that need became widespread in the Navy for good, strong gaskets. In the middle years of the 1930's, the interest of the Navy in our gaskets revived and our boiler gaskets were subjected to a series of tests conducted by U. S. Navy engineers. Following these tests, our gaskets were approved for Navy use on boilers and we were given annual contracts.

In the late years of the 1930's, a new interest developed within the Navy for our materials. We developed a very strong, fool-proof gasket for use in high-pressure steam pipe lines. This gasket, known as our Style C-G, you will be able to examine. It is made of two parts; (1) a resilient member, made in the typical Flexitalllic spiral-wound manner, surrounded by (2) a solid steel ring. This gasket is safe. It stays tight. It is easy to install. It saves time both when a ship is being built and when repairs are made.

The Navy tested our C-G gaskets and approved them. A few were used in 1938; more in 1939. In 1940, the huge Navy building program began, and demand for our Style C-G gaskets increased very greatly. With the beginning of war in late 1941, the Navy's need for more ships, once again put new demands on our Company. Since the war started, we have been operating at high capacity and we have needed all the good people we could train to help us.

There is one other style of Flexitalllic Gasket that deserves special notice. It is known as the Style D, and is composed of a standard Flexitalllic gasket-member enclosed within a loop of metal, which is approximately of a diamond shape. Later on, we will ex-

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plain the construction in more detail.

These Style D gaskets were approved by the U. S. Navy in 1936 for service in pipe-flange joints. They are also in use on many ships of the U. S. Merchant Marine. From the standpoint of use in the Navy, they are not as important as the Style C-3 gaskets, but they represent another pioneering step by our Company. The outer, diamond-shaped ring is put on to assure proper position in the pipe line. The loop fits over two bolts in the ring; and, when looped over the bolts, the gasket is held in correct position.

The Style C-3 gasket is also self-centering. The outer, solid-steel ring fits inside of and rests on the bolt circle, with the result that the gasket takes its correct position. Our gaskets were the first to introduce the important, self-centering idea. Their use has saved untold hours in construction and repair of ships in the present war. We have no accurate record of hours saved by the use of our spiral-wound gaskets but one of the largest shipbuilding companies tells us that it is possible to save approximately \$10.00 per flange, or \$20.00 per joint on the average size pipe as compared to ordinary gaskets.

It is a plain fact that our Company has provided the important new ideas in gasket construction in the past thirty years.

It is a plain fact, too, that steam and other fluids under high pressure are hard to handle. It is no simple matter to make a tight seal when the contained fluid, at high temperature, is trying to escape under pressures per square inch of 400, 600, 1500, or 2500 pounds. A leak can severely injure or kill people who are near it. A leak can cause a ship to lose power. A leak can cause a steam-generating plant no end of trouble and can interfere with production of energy for use in war plants on shore. In the Flexitallic Gasket Company, you become a part of a vital effort to build ships, to keep ships in service, and to help in producing power for war industry. In this connection you have probably heard the statement that a battleship is simply miles of piping surrounded by a steel hull, and it is a fact that the length of piping in an average size naval vessel is 50 miles.

We have made our gaskets in the factory we now have for over thirty years. Some changes have been made in our plant to enable us to keep pace with the huge demands made upon us in the past two years. We are doing a big job in a small shop. We can do still more. The skill you develop will enable us to supply more gaskets. We welcome your help.