

Die-Namic[®] Process

Helps Copeland Refrigeration

Meet

Assembly Scheduling Demands

"Emergency runs, sometimes as low as 100 gaskets, can be made in a matter of minutes to finish an assembly line run of compressors without line shutdown. Downtime on lines due to gasket shortage is past history." This is the way Mr. Cecil Lenhart, Manufacturing Engineer at Copeland Refrigeration Company, Sidney, Ohio, explains the economic value of the Minster Die-Namic Process as applied by his company.

Copeland manufactures "Copelaweld" refrigeration compressors up to 7 hp. Their major markets are appliance and air conditioning manufacturers including truck refrigeration. All compressors are produced to meet customer requirements. A variety of head and valve plate gaskets are needed for compressors ranging up to 5 hp. Material used is "Duroid," an asbestos-base material which has some abrasive qualities. Two years ago Copeland purchased a 60-ton, 6D Die-Namic press to produce these gaskets in-plant. The results have been gratifying.

Dies are Run "Metal to Metal" with Excellent Die Life

Copeland has over twenty steel rule compound dies on standard Die-Namic die holding plates. They are run in direct contact with no clearance in order to get clean sharp edges on the parts. Even under these conditions Copeland gets from 124,000 to 150,000 parts per die grind. This is positive proof of the repetitive accuracy of the die plate alignment in the Die-Namic fixture.

Long and Short Runs . . . as required

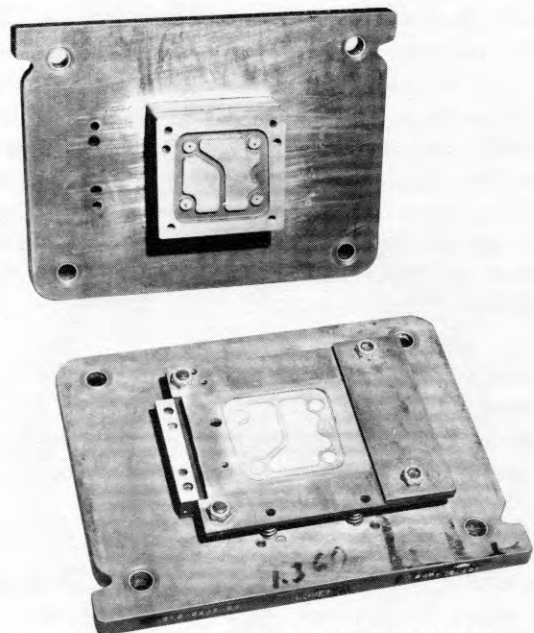
Copeland will make long runs up to 120,000 of the same gasket. However, they can quickly and easily inject short runs of other sizes and thicknesses during the long run due to the quick die change ability provided by the Die-Namic Process. For example; The press operator is producing a long run of their high volume head gasket which is .031" thick. A compressor assembly line using another gasket .009" thick is running out and needs 250 parts to complete their order.

The job setter can change dies in less than two minutes to switch the press over to handle the emergency run . . . and then in another two minutes, have the press back on its original production.

This ability to complete short runs from 100 to 500 parts as needed helps keep those assembly lines going without shut down.

High Productivity — 16,500 parts per eight-hour shift

The press operator on this Die-Namic press produces, with ease, 16,500 parts per shift and is extremely proud of the production and quality record. Another plus for Die-Namic is the easy operation. At Copeland the operator stands at the press using a foot switch on single stroke to run the machine. Both the operator's hands are occupied feeding the strip through the die with the die



Typical set of plate-mounted dies used to produce gaskets for compressors.

completely guarded so the operator is fully protected. The material is in two foot length strips. She slides a strip off the stack with her right hand, feeds it through the stock guide in the tool, visually spacing the strip for each part as the strip is progressed. The design of the guard around the Die-Namic fixture doesn't interfere with the operation. The operator seldom misses a hit. While she finishes off the end of the strip with her left hand she is already starting to position the next strip with her right hand. The rhythm of the operator easily allows her to achieve 16,500 parts in an eight hour shift.

Excellent Die Area Guarding

Mr. Lenhart redesigned the rod-type cage guard for the die area of the Minster Die-Namic press at Copeland. (Originally it had square front corners.) Now, its configuration allows easy operator movement yet very effectively prevents insertion of even a finger tip into the fixture or die area. The front is a hinged, heavy plexiglas door which opens for die change. Two latches hold door in closed position to close circuit so press will operate. Opening the door stops the press.



Mr. Cecil Lenhart, Manufacturing Engineer, shows one of over twenty compound dies used with the Minster Die-Namic press. Dies are stored in a closed metal cabinet within a few feet of the press. Plate-mounted dies are filed in easily accessible, vertical position requiring very little space.

Unique design guard with plexiglas door.

