1966 National Safety Council

SAFETY FACTS ABOUT SAFETY BLOCKS

By ROBERT T. DANIELS
Director of Safety, Fisher Body Div., General Motors Corp., Detroit, Mich.

No doubt some of you are wondering why we at Fisher Body are so extremely interested in safety blocks.

When you realize that we have *3,621* sheet metal stamping presses in our 10 fabricating plants, and that we handle more than 8,000 safety blocks in and out of these presses many times a day, there should be little wonder about our great interest.

Our *3,600* presses use large upper and lower dies weighing from 3,500 pounds up to as much as 282,000 pounds. When these dies need repair, adjustment, or cleaning during production runs, usually we can and do leave them in the presses.

To protect the employees making the repair, we have long followed the practice of using safety blocks as an added safeguard to insure that the ram of the press is held in the up position and the dies kept open. Historically, safety blocks have been constructed of wood, steel and black pipe. Some of these blocks are as much as 36 inches in height and weigh from 10 to as much as 65 pounds each. Until a short time ago, it was common practice in our business to specify four, and sometimes five of these large cumbersome blocks between the dies in large presses. The excessive weight of these large blocks stimulated the search for a new lighter material to reduce the weight lifting required of the die repair employees. However, finding a satisfactory lighter metal to use as a substitute for strong and durable steel and black pipe, one which would meet *all safety requirements,* was not an *easy* assignment.

The basic question at that time was: *"What type of metal would combine strength and durability and still be light in weight?"*

Some of our plants began an experiment with extruded magnesium. At first, a half-moon shaped piece was used. Later, a clover-leaf-shaped solid magnesium block was tried. Still later, one of our plants tried an extruded magnesium tubular block. This proved to be very satisfactory. We felt we were getting close to the kind of block we had hoped for.

By this time we had made some compression tests on the tubular magnesium blocks. We knew their compression strength; but we suddenly realized we didn't know the compression strength of the old conventional black pipe and steel blocks. Consequently, any kind of an objective comparison was impossible; therefore, we decided to find out.

At this point, in cooperation with General Motors research engineers, a detailed study was made of many black pipe, steel and tubular magnesium blocks to determine the exact compression strength and comparative weights of each and their reaction under extreme compression conditions. At the same time, we were hopeful that with the information we would obtain, we could produce a table or chart that all Fisher Body metal fabricating plants could use as a guide.

1. This guide would specify the minimum number of safety blocks to be used in a press, based upon the size of the press and weight of the press ram and dies.

2. Included would be the size of the safety blocks to be used in each press. On this chart we would specify the height, the diameter, and wall thickness of the block.

This type of information would remove the guess work and human error in the proper selection of safety blocks for each of our presses.



Figure 1

Figure 1 shows a 108-inch 700 ton sheet