Of all the machines used by industry, probably none are more controversial than those used for cold forming metal—namely power presses and other related equipment The controversy arises primarily because of the many serious accidents associated with press operations, particularly at the point of operation

For many years, concerned and knowledgeable safety professionals have advocated a "hands out of dies" policy for press operations, reasoning that if the operator could not put his hands or other parts of his body between the dies, there could be no injury This policy was incorporated into the 1971 revision of the voluntary American National Standard B11 1, *Safety Requirements for Construction, Care, and Use of Mechanical Power Presses,* which in turn in 1972 was made an OSH standard, section 1910 217 The policy thus passed from voluntary to mandatory—with wide-sweeping consequences for all power press users

There is no useful purpose served in debating the merits or faults of such a policy Both sides of the issue have presented many arguments supporting their position Neither side disputes the goals of the "no hands in dies" policy, which is the elimination of press injuries in the die area It is the means of accomplishing the goal which concerns everyone.

For many years the Power Press and Forging section of the National Safety Council has also advocated the "no hands in dies" policy, and many NSC members have adopted the policy for their operations Others have adopted modified versions of the policy It really matters little what the final policy or means are as long as the goal remains "no point-of-operation press accidents"

The problem is not easy to solve for many reasons At this time, one of the largest reasons is that no one has objectively studied press operations systematically in all its components This is particularly true with regard to the interaction of the operator in the process at the interface (See Chapter 10, "Human Factors Engineering") Be sure to obtain the American National Standards that pertain to your operations These standards contain much detail on the operation and functioning of such machines which complements the discussion in this Manual The B11 standards are particularly helpful for they contain explanatory notes which facilitate better production with safety

Power Presses

Probably the easiest and most common way of creating a useful object from a sheet of metal is to cold form it in one, or more, of a unique group of machines called power presses Such machines usually consist of a frame within which a powered slide or ram is moved, in a reciprocating motion, at right angles to a stationary bed Attached to the slide and the stationary bed there are mated dies which cut or form material placed between them when tremendous pressure is applied by the slide to close the dies. This action of closing the dies creates particular hazards for an operator, unless safeguarding is used to keep the operator out of the die area, and to confine or deflect the effects of the exerted force of the dies

There are four kinds of power presses in wide use today the mechanical power press, the hydraulic power press, the power press brake, and the shear As was just pointed out, each operates on similar principles and, at times (with the exception of the shear), the same job might be run on all machines However each machine is best suited for use in a particular way by reason of its construction differences

Mechanical power presses

Mechanical power presses are of two basic types of construction with variations of each, the gap frame (OBI), which is like a "C," and the straight side frame, which is like an "H" (See Fig 32-1) The gap frame is the more common and is generally lighter and with a lower tonnage capacity It is used extensively for small- to medium-sized parts production It is very versatile and can be used for both primary and secondary operations, as well as for specialized operations such as coining, riveting or staking, and other assembly operations

In the past, many of these operations were accomplished by manually loading the material to be processed directly into the lower

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