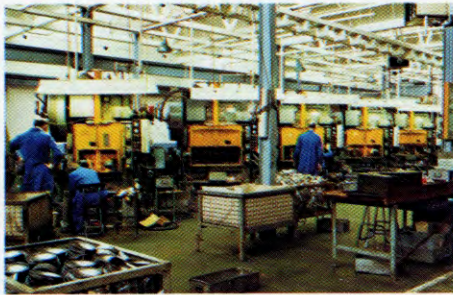


At Plessey, Minster Die-Namics reduce lead time

Whether it's telephones or telemetry; radio, radar or sonar; weapons control for the modern warship; aircraft communications or fuel management systems, Plessey can provide the technology and the components to make them work. The Plessey Company Limited, based in the United Kingdom, is a worldwide industrial organization specializing in communications and electronics. Working on a global scale, they have expanded their operations to over 130 countries.



Modern Beeston stamping facility. The Plessey operation at Beeston covers more than 50 acres and employs 6500.

Several years ago at the Plessey establishment in Nottingham, England, the local management was faced with the problem of what to do about a number of power presses that were badly worn. The presses were being used to produce a wide variety of intricate electrical components that would later be assembled into sophisticated communications equipment at Plessey assembly facilities located throughout the world. Actual press utilization was low and maintenance was high. Inspections confirmed that many of the machines were so badly worn, only total replacement should be considered. It was decided that, since a major replacement program was necessary, this was, indeed, an appropriate time to investigate ways of improving the total operation. They took a long, hard look at the problem and came up with some very profitable answers.

Small Batch Production

Due to the nature of Plessey business, only limited quantities of certain stamped parts are needed at a particular time. Typical batch runs seldom exceed 5000 parts, with the

normal run averaging only about 1400 pieces. The time required for their die setters to install a conventional die was approximately 35 minutes. So, it was not unusual to spend more time setting the die than running the parts. As a result, many presses were standing idle waiting for the tooling to be changed. That condition caused further delays in assembly shops where people were waiting for pieceparts to complete small order quantities.

Although the purchase of new conventional presses would have given Plessey an improvement in terms of reduced maintenance and greater versatility, their investigation revealed that this was not the total answer. The problem of frequent, time-consuming die changes still prevailed. Continuing their search for a better method, they were introduced to the Minster Die-Namic System. Of course, Plessey was no stranger to Minster, having used Minster presses for several years. Their experience during that time had proven the equipment to be, as shown on their reports . . . "of extremely high quality." Now it was Minster's chance to show that a fine press could also provide the advantages of "quick-change" tooling.

By using standard size Die-Namic upper and lower die plates — instead of conventional die sets — Plessey found that the cost of building dies would be considerably less. But, better yet, they found that the time required to change dies, using the Die-Namic Process, was reduced from an average of 35 minutes to less than three minutes. The dies could also be changed promptly by press operators, with no lost time waiting for a die setter. The improved efficiency using this process would permit better press utilization and allow them to replace 12 conventional presses with only eight Minster Die-Namics.

Plessey Finds The Answer To Efficient Production

Based upon a favorable assessment by their investigative team, Plessey, Nottingham, purchased their first group of Minster Die-Namic Presses. The year was 1971. It was shortly thereafter that the

company began to maximize those benefits provided by the time-saving Die-Namic Process. Because fewer presses were required, more floor space became available for other purposes. Because standard Die-Namic die plates were used, dies could be stored near the press; press operators could change their own dies within three minutes; and the cost of building new dies was considerably reduced. Because the Die-Namic presses provided a high degree of reliability — while requiring only minimal maintenance — operating costs were substantially reduced and productivity increased.

Concerning their conversion to the Die-Namic Process, Dan Roberts, Manager (Machines and Presses) at Plessey, Nottingham, said "Minster Die-Namics have reduced the lead time of a typical part run from 10 days to 1 day — a 90% savings. The equipment has also proven to be of the highest quality. Actually, eight Die-Namic O.B.I. presses replaced 12 conventional power presses . . . with an improvement in overall performance."



Beeston facility operates 23 Die-Namic O.B.I.'s for "short-run" flexibility.

Press Utilization Vastly Improved Due To Quicker Die Changes

Press utilization was extremely low before switching to the Die-Namic Process. The ratio of setting time to operating time was approximately 1:1, which meant idle machines and lost productivity. "The problem," says Mr. Roberts, "was overcome by reducing the time required for die setting and the skill required to do it. The Die-Namic Process enabled these small quantities to be processed at a rate comparable to normal batch production." Since the time Minster Die-Namics were installed,

of a typical part run from 10 days to 1 day.

Beeston's ratio of operating time to setting time has improved steadily until it is now approximately 10:1.

Due to the success of their initial program, a second program was implemented, and more presses were added. The company is now operating 23 Die-Namic O.B.I. presses. They have also been able to effect changes in their labor structure by upgrading press operators to the position of setter/operator, while eliminating some 20 die setter positions. Concerning the program, Dan Roberts says, "The Die-Namic system of rapid-set die plates has reduced, considerably, the time required to set press tooling. We now get good parts, faster!"

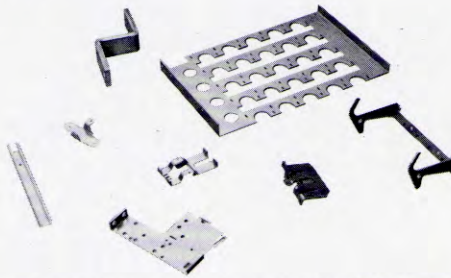
Reduced Tool-Design Time

But, a reduction in die-setting time is just one of the savings realized. Conventional die sets are initially more expensive than Die-Namic die plates, yet they do not provide the quick-change feature. Using Die-Namic plates, Plessey found that tool design time was reduced by an average of 4 hours per tool. And by using the built-in rapid set feature, as much as one hour per tool is saved on tryouts. Says Dan Roberts, "With Minster's Die-Namic Process, toolmaking costs have been reduced by 20%! Tool construction is simpler and more economical than with conventional dies. Standardization of the Die-Namic plates also allows us to use computer-assisted-design methods for most new tooling."

Tooling Conversion Continues

To date, Plessey has designed and built 1560 new Die-Namic dies for their 45 ton Die-Namic presses, and over 800 for the 75 ton units. They have converted some 2600 conventional dies to Die-Namic die plates . . . 1800 for the No. 5's and 800 for the No. 7's. Production of new Die-Namic dies continues at the rate of nearly 30 a month. And because the cost of Die-Namic die plates is less than the equivalent conventional die set, an immediate cost avoidance is realized on each of the new and replacement tools.

Concerning tooling maintenance, an interesting procedure should be noted with regard to dies returned to their toolroom for sharpening. After the die has been ground, it is installed in a Die-Namic tryout press to be checked. Proper shut-height setting is determined, and if it is different from the amount originally shown, the correct setting is stamped on the tool before it is returned to storage. This arrangement saves production time by allowing the setter/operator to immediately adjust the press for proper shutheight whenever that die is used. Good parts are made, faster!



Typical components produced on Die-Namic presses at Beeston.

Additional Floor Space Pays Off

After Plessey disposed of their old and unneeded conventional presses, an additional 1296 sq. ft. of valuable floor space became available for production purposes. Converting their dies to Die-Namic die plates also permitted a reduction in die storage area, releasing another 1552 sq. ft. for new use. The additional area provided room for equipment now being used to produce items "in-house" that were previously sub-contracted on the outside.

Need For Some Conventional Presses Continues

Plessey still has a need for some conventional type presses, several of which are used to perform intricate assembly operations. But here again, Minster presses are used and continue to provide precision performance — shift after shift — with only a minimum amount of maintenance. When asked about his experience with Minster presses in general, Dan Roberts responded, "Before installing the Minsters, we were repair-

ing clutches all the time; but no more. I am particularly satisfied with Minster's clutch arrangement. Maintenance is lower on these presses than any type I've had experience with."

The Plessey Nottingham facility now owns and operates nine conventional Minster presses in addition to 23 Die-Namics. Included in that group are seven P2-30's, a P2-100 and a B1-32 Fixed Base Gap press, ". . . with which we are very happy," adds Mr. Roberts. "Machine reliability is high and maintenance is minimal."

And Tomorrow . . .

And into the 80's, Plessey will pioneer moves toward meeting worldwide demands for telephones and other, more sophisticated, forms of communication equipment. Computer techniques are being increasingly applied to telephone systems, resulting in a new generation of extremely compact digital exchanges for the business community. This special, high-technology industry, where change is an everyday occurrence, requires an economic method of producing small quantities of precision parts. Many new components are constantly being introduced as others are being phased out. Mr. Roberts explains, "As production requirements become smaller in the life cycle of a product, part stamping runs become likewise smaller, thereby justifying conversion to the Die-Namic Process."

Special production problems require special solutions. Perhaps Minster's Die-Namic Process can provide a special solution to your difficult short-run problems.

Confirmed savings with Die-Namics at Beeston

- Reduced number of presses required
- Reduced stock levels and work-in-progress
- Reduced tool design time
- Reduced new tool cost
- Reduced tool try-out time
- Reduced tool setting time
- Reduced small-batch cost overall