

Rapid Mass Production and the Relay Race Principle

RAPID MASS PRODUCTION (RMP) is a new and unique express service for large and medium-sized series (3 to 30 qm production size). The manufacture of multi-layers takes only 9 working days and double-sided pressings only 7 ! (Minimum charge: 10% of order value). So far, express services have been mostly in the realm of prototype manufacturers, but RMP is on offer to all customers who recognise the market opportunities resulting from accelerated product launches or speedier completion of orders. The following brief feature describes the manufacturing concept that we have developed to achieve just such a solution:

Apart from technical specialisation, the market in multi-layer business is divided largely into two groups: those that manufacture in the largest possible series, and those that produce prototypes and mini series in the fastest possible time in order to encourage the development of new products.

Their strengths, however, are also their weaknesses. The fast producers must remain small in order to be flexible, whereas the volume of orders received by the large producers awakens acquisitive interest from the even larger international manufacturers who, thanks to wage differentials in the world, squeeze profit margins through price dumping until "withdrawal" from the market occurs.

RAPID MASS PRODUCTION

is an idea born from the wish to combine the speed of production typical of prototype "rush job" specialists with the reasonable costs associated with manufacturing large series.

We based our considerations on the observation that complex production methods can also be provided for "mass", i.e. large amounts rapidly if there are no hitches and production flows smoothly. "Hold-ups" are evident even in state-of-the-art manufacturing due to buffer stocks, i.e. piles of materials waiting for further processing, either because a machine is not yet free or has to be converted. The problem can be best compared with a relay race, in which a smooth handover of the baton to the next runner is essential.

Should the runner receiving the baton lose his rhythm because the handover was poorly executed, the team loses valuable time as his acceleration must begin from a reduced speed. This comparison with a relay race also helps to recognise the solution to the problem. In analysing the

BATON HANDOVER

one realizes that this is something which is never influenced by an external trainer, but that the athlete alone must deal with this critical moment. The receiving athlete, in particular, must adapt with lightening speed to conditions that are never the same, i.e. to the speed, rhythm and movements of the previous runner, as well as to the positions of his opponents.

This situation is therefore solved de-centrally, at the place of action. This is exactly the principle that we have adopted in our production. Although logistics and distribution still determine when an order must be completed, it is the operators in the departments themselves who are responsible for the regulation of a smooth flow of production.

From the first production step, the respective operators promise to complete all RMP orders by a certain date. In this way the operator responsible for the subsequent step can have all of his technical and organisational equipment fully prepared to receive the handover of the order. If he knows the time point, he is also obliged to

"PROMISE"

the time of completion by his department so that the following operator can be prepared, and so on. By means of a PPS support system expressly developed for this purpose, communication between operators has been simplified to the extent that organisational work is minimal.

In addition to the organisation, of planning, production was examined to identify time-intensive procedures and ways of improving operational times by means of new machine technology or innovative approaches to old manufacturing concepts. Our goal however, is one day to be able to fill all orders within the above targets and not only a select few.