

Guide to production control —

Part 2: Production programming

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Quality, Management and Statistics Standards Policy Committee (QMS/-) to Technical Committee QMS/33, upon which the following bodies were represented:

- British Computer Society
- British Production and Inventory Control Society
- Chartered Institute of Management Accountants
- EEA (The Association of Electronics, Telecommunications and Business Equipment Industries)
- Institute of Logistics and Distribution Management
- Ministry of Defence
- Nottingham University
- PERA International (Production Engineering Research Association)
- University of Bradford
- University of Manchester (Institute of Science and Technology)

This British Standard, having been prepared under the direction of the Quality, Management and Statistics Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 March 1993

© BSI 06-1999

The following BSI references relate to the work on this standard:
Committee reference QMS/33
Draft for comment 90/97361 DC

ISBN 0 580 21493 1

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
Introduction	1
1 Scope	1
2 References	1
3 Definitions	1
4 Production programming	1
5 Master production schedule (MPS)	2
6 Capacity planning	8
Figure 1 — Stages of production control	3
Figure 2 — Closed loop system	4
Figure 3 — Master production schedule horizon	6
Figure 4 — MPS make-to-stock	7
Figure 5 — MPS make-to-order	7
Figure 6 — MPS make-to-stock/complete-to-order	8
Figure 7 — Infinite capacity loading	10
Figure 8 — Finite capacity loading	10
List of references	Inside back cover

Foreword

This Part of BS 5192 has been prepared under the direction of the Quality, Management and Statistics Standards Policy Committee.

The prime objective of production control is to help a company become more competitive and profitable. An effective production control function endeavours to fulfil this objective by keeping a balance between satisfying sales demand, achieving high plant utilization and maintaining low investment in stocks and work-in-progress. An optimum balance between these often conflicting objectives will only be achieved by a production control system designed to meet the specific needs of the company and run by well trained and dedicated staff.

BS 5192 is published in six Parts and gives comprehensive guidance in those areas that are considered essential for effective production control. The Parts are as follows:

- *Part 1: Introduction: Scope of the guide, purpose of production control, relationship to other functions, technological changes, choosing the system to fit the business;*
- *Part 2: Production programming: Relationship to corporate and business programmes, planning techniques, master production scheduling, capacity planning;*
- *Part 3: Ordering methods: The various types of ordering and stock control systems, comparing the advantages of each for particular applications;*
- *Part 4: Dispatching: The methods of shop floor production control and documentation involved and the increasing influence of computers;*
- *Part 5: The relationship between production control and other management functions: The production control information flows in the organization, their generation, presentation, use and maintenance;*
- *Part 6: Computer aided production control: The application of computer software to the production control function.*

Throughout this standard, use of the pronouns he, him and his is intended to be non-gender specific.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Introduction

This Part of BS 5192 deals with the creation and maintenance of production programmes and their relationship to other plans in the business and to the resources required to implement them. Realistic production programmes are essential to ensure achievement of the organization's manufacturing objectives. For the different stages of production control see Figure 1.

1 Scope

This Part of BS 5192 gives guidance on production programming and its relationship to corporate and business programmes and planning techniques such as master production schedules and capacity planning.

2 References

2.1 Normative references

This Part of BS 5192 incorporates, by reference, provisions from specific editions of other publications. These normative references are cited at the appropriate points in the text and the publications are listed on the inside back cover. Subsequent amendments to, or revisions of, any of these publications apply to this Part of BS 5192 only when incorporated in it by updating or revision.

2.2 Informative references

This Part of BS 5192 refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

3 Definitions

For the purposes of this Part of BS 5192, the definitions given in BS 3138:1992 and BS 5191:1975 apply, together with those given in BS 5192-1:1993.

4 Production programming

4.1 Relationship between production programmes and other plans

As explained in BS 5192-1, in most businesses there is a hierarchy of plans, the following being typical examples.

- a) *Corporate plan* sets out the strategic direction of the business over a period of 2 years to 5 or more years.
- b) *Business plan* covers a shorter timescale, usually 1 to 2 years, and lays down in more detail budgets for each of the operating functions of the business together with non-financial objectives.

c) *Production plan* is a statement of the products to be made and the plant and manpower required to make them in order to achieve the manufacturing objectives contained in the corporate and business plans. It usually covers a similar timescale to the business plan, though the timescale may be considerably longer if major developments in plant are planned. The planned production may be stated in broad terms of value, mass, volume or product groups, depending on the nature of the product and how much information is available about future demand.

d) *Master production schedule (MPS)* is the programme that drives the business in the short term. It is a statement, not a forecast, of the products to be made, and when and in what quantities they are to be made. The time span of a master production schedule depends on the lead time of the products and should be at least as long as the lead time of any item in the schedule. Typically, the master production schedule covers a 6 month to 12 month rolling period with monthly or weekly reviews. There is a two-way link between the master production schedule and sales and financial plans in order to obtain a consensus about what constitutes a realistic and achievable plan. The master production schedule is also the input to systems for planning and ordering purchased and manufactured parts, e.g. material requirements planning (MRP).

Each level of planning is dependent on the one above, and decisions made at higher levels will limit the flexibility of plans at lower levels. The degree of flexibility will depend upon the nature of the manufacturing process. For example, the output of an assembly shop employing simple tools and semi-skilled labour will not be constrained to the same extent as that of a process plant which uses unique equipment requiring several years to commission.

4.2 Other planning techniques

In addition to, or in conjunction with, master production scheduling, a number of other techniques are employed to plan manufacture. Their application depends upon the nature of the manufacturing process.

- a) *Assembly schedules* are used to instruct an assembly shop what products are to be assembled daily or weekly (see 5.5).
- b) *Machine programmes*. In factories that manufacture products from high cost plant such as large presses or moulding machines, programmes are in many instances maintained for individual machines or groups of machines.