

Data definitions for maintenance ratios

Comparison parameters

Period

This is the period covered by the data supplied. For best comparison, it should be the most recent calendar year or corporate financial year. Ratios always cover a 12 month period.

Some of the figures requested below (e.g. maintenance expenditure) are totals for the period in question. Others are "point in time" (e.g. number of craftsmen) and might vary during the period while still others are averages (e.g. % overtime) over the entire period. Where point in time figures vary significantly (due, for example, to rapid expansion) then a representative figure such as the average should be supplied.

Total plant staff

This is the total number of staff associated with the manufacturing operation. Staff on site dealing with other areas such as R&D or marketing should be excluded.

Industry sector

This is the industry sector that the plant operates in, for example bulk pharmaceutical manufacturing, food processing, electronic equipment manufacture, confectionery etc.

Operation type

This is the type of manufacturing that predominates on site or is considered most relevant for comparison of maintenance, for example, high speed packaging, PCB assembly, liquid filling/bottling, chemical processing etc.

Level of automation

This is the approximate level of manufacturing automation expressed as high, medium or low.

Data items required

Factory replacement value (£)

This is the present day cost of replacing the factory to the original specification (or the nearest modern equivalent).

A figure for factory replacement value may already be used for insurance purposes and this might be suitable. However, if there is a factor of safety built into this figure to ensure adequate cover, then this factor should be taken out to make the estimate as realistic as possible.

Conversion cost (£)

This is the cost of all operations carried out in the production process which converts raw materials into finished goods. It is typically the operating cost minus the cost of raw materials.

Maintenance expenditure (£)

This is the total spending on maintenance, including labour, materials, contracts and overhead.

What is included in the "maintenance" budget can vary from factory to factory. What we are looking for here is the cost of preventive, predictive or corrective work required to keep the plant in acceptable condition or to prevent or correct failures of production or other plant or facilities. Items such as security, canteen, cleaning services, utilities operation, fuel or electricity should not be included in the maintenance spending figure. Capital spending should also be excluded.

Maintenance direct labour (£)

This is the cost of wages and other employee related costs for the technicians, craftsmen, helpers etc. who carry out maintenance work.

This figure should include the cost of contractors who are effectively substituting for direct labour. These contractors typically operate like the company's own employees, taking their work assignments from company supervisors or managers and using company supplied spare parts etc.

Labour % on production support & projects

This is the % of the maintenance direct labour which is utilised for production support or project work rather than preventive or corrective maintenance. Production support includes line changeovers and any other tasks required to facilitate production and, in some factories, time spent standing by in production areas ready to provide support through running adjustments etc. Note that some "project" work aimed at improving equipment reliability may properly be counted as maintenance.

Ex-stock maintenance materials (£)

This is the total value of spare parts or other maintenance materials issued from stores stock. "Ex-stock" is taken to mean that the item was available on the shelf in the maintenance stores when it was requested.

Directly purchased maintenance materials (£)

This is the total value of all items used by maintenance which were not available "ex-stock" as above. It should include items bought through the stores for immediate use even where they have a stock code.

Maintenance contracts total (£)

This is the cost of all maintenance work that is contracted out.

At a minimum, this figure is likely to include service contracts on utilities plant (air compressors, chillers, boilers etc.) but may include much more. It should include any contract or contractor cost where the responsibility for the task or the service level provided is taken by the contractor. Where contractors are simply providing a source of labour, the cost should be included in the maintenance direct labour figure above instead.

Maintenance stores inventory value (£)

This is the actual present value of the total stockholding of spare parts and other maintenance materials. Note that, in some cases, this figure may be substantially different from the inventory value used for accounts purposes. We are looking for a realistic estimate of the value of the stockholding.

Number of craftsmen

This should include all the skilled trades employed in maintenance plus multi-skilled crafts or technicians. Where appropriate, skilled contractors who are supplied to the company as direct labour (see above) should be included.

Number of operators

This is the number of production operators employed in the plant.

Maintenance supervisors

This is the number of maintenance supervisors in the plant.

Comparison here will not be meaningful where the maintenance craftsmen or technicians report to production supervisors or are self supervising. In these cases, this number should be left blank or recorded as zero.

Number of support staff

This should include staff personnel such as storemen, work planners, maintenance clerks, engineers etc. whose role is one of supporting the maintenance craftsmen or technicians.

An allocation may be necessary for staff who spend only some of their time on maintenance support activities.

Overtime level (%)

The overtime level is the number of overtime hours worked expressed as a percentage of the total hours worked by the maintenance team.

Unplanned work level (%)

This is the level of unplanned maintenance work carried out as a percentage of all maintenance work done. It should include all emergency jobs (production, safety etc.) and other reactive maintenance work (i.e. work which is dealt with as it arises). It should include running maintenance carried out as part of production support and any other maintenance work carried out without prior planning.

If possible, the figure should be given as a percentage of total hours worked. If it is only available as a percentage of jobs done then this should be noted in the check box.

Preventive maintenance work level (%)

This is the percentage of all hours devoted to corrective and preventive maintenance work which is spent on preventive maintenance. Predictive maintenance work should be included. **Time spent on production support should be excluded from the comparison (i.e. the total against which the preventive work is compared should not include time spent on production support tasks).**

If the figure is only available as a percentage of jobs done then this should be noted in the check box.

Scheduled work level (%)

This is the percentage of all maintenance work which has a starting time, duration etc. laid out on a time schedule in advance.

The scheduling should allow enough notice for the provision of spare parts or other resources required to carry out the work. Work must be planned (what & how) before it can be scheduled (who & when).

If possible, the figure should be given as a percentage of total hours worked. If it is only available as a percentage of jobs done then this should be noted in the check box.

Work schedule compliance (%)

This is the percentage of scheduled jobs that were completed in line with the schedule.

Jobs per week

This is the average number of jobs carried out by the maintenance team each week.

Stockouts in maintenance stores (%)

This is the percentage of items requested that the stores could not supply because the items were not in stock. Where a single requisition requested multiple items, the items should count separately.

Confidentiality

All information supplied is treated as strictly confidential and is used solely for the purpose of calculating maintenance ratios. The information is used to generate the ratios listed in the specific report for each site and to generate the aggregate (mean etc) ratios which appear in all reports. Site specific information only appears in the report for that specific site and it is not possible to derive individual ratios or source data supplied by any site from the aggregated information. Participating sites will be listed in the comparison reports so that everybody can see who is included in the comparison. Where the comparison is broken down into smaller groups based on industry or manufacturing technology, the sites in each group will be listed. However, the size of these groups will be sufficiently large to make average results meaningful and care will be taken to ensure that no one site's figures can be inferred from the results for the group. Under no circumstances will the data or results for any site be communicated to any other.



Maintenance Management Consultants

MICA Management Consulting

2 Redhouse Square, Duncan Close,
Moulton Park, Northampton, NN3 6WL

Tel: 01604 289480 **Fax:** 01604 289550

Web: www.maintenance-ratios.co.uk

Email: enquiries@maintenance-ratios.co.uk