
**Information technology — Office
equipment — Minimum information to be
included in specification sheets —
Printers —**

Part 2:

Class 3 and Class 4 printers

iTeh STANDARD PREVIEW

(standard) *Technologies de l'information — Équipements de bureau — Information
minimale devant figurer dans les notices techniques — Imprimantes —*

Partie 2: Imprimantes classe 3 et classe 4

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 11160-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 28, *Office equipment*.

This second edition cancels and replaces the first edition which has been technically revised.

ISO/IEC 11160 consists of the following parts, under the general title *Information technology — Office equipment — Minimum information to be included in specification sheets — Printers*:

— Part 1: Class 1 and Class 2 printers

— Part 2: Class 3 and Class 4 printers

Annex A forms an integral part of this part of ISO/IEC 11160. Annexes B, C and D are for information only.

Introduction

Printers of many different types and capacities are now available and their specifications vary so widely that it is difficult for potential users to assess which machine might best meet their requirements.

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Information technology — Office equipment — Minimum information to be included in specification sheets — Printers —

Part 2: Class 3 and Class 4 printers

1 Scope

ISO/IEC 11160 is intended to facilitate users in selecting a printer which meets their requirements.

ISO/IEC 11160 specifies the minimum information to be included in the specification sheets of printers in order for users to compare the characteristics of different machines. The term “Specification Sheets” applies to documents which describe the performance characteristics of the printers to be included in instruction manuals, product brochures or on websites.

ISO/IEC 11160 applies to printers that could be operated in an office environment. Printers requiring specially equipped rooms or specially instructed operators are not considered in ISO/IEC 11160.

ISO/IEC 11160 deals with different classes of printers. This part of ISO/IEC 11160 accommodates Class 3 and Class 4 printers, as defined in Annex C. Detailed descriptions of Class 3 and Class 4 printers are specified in Annex A. Serial printers are classified as Class 1 or Class 2 printers as defined in Annex C and covered by Part-1 of ISO/IEC 11160.

2 Conformance

In order to comply with this part of ISO/IEC 11160, specification sheets shall include, in the order shown, all required items listed in clause 5 which are relevant to the machine being described.

3 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7779, *Acoustics — Measurement of airborne noise emitted by information technology and telecommunications equipment*

ISO 9295, *Acoustics — Measurement of high-frequency noise emitted by computer and business equipment*

ISO 9296, *Acoustics — Declared noise emission values of computer and business equipment*

ISO/IEC 19752, *Information technology — Method for the determination of toner cartridge yield for monochromatic electrophotographic printers and multi-function devices that contain printer components*

ISO/IEC 19798, *Information technology — Method for the determination of toner cartridge yield for colour printers and multi-function devices that contain printer components*

ISO/IEC 24711, *Method for the determination of ink cartridge yield for colour inkjet printers and multi-function devices that contain printer components*

ISO/IEC 24734, *Information technology — Office equipment - Method for measuring digital printing productivity*

4 Test and measurement conditions

Unless otherwise specified, all tests and measurements shall be conducted at the following conditions:

- | | |
|-------------------------------|--|
| a) Temperature: | 23 °C ± 5°C |
| b) Relative humidity: | 50 % ± 20 % |
| c) Line Voltage: | rated input voltage |
| d) Line Frequency: | rated frequency |
| e) Paper size: | A4 |
| f) Paper weight: | 60 g/m ² to 90 g/m ² |
| g) Paper transport direction: | standard direction |

For the test pattern, the document in Annex B (Informative) should be used.

Annex B is derived from ISO/IEC 10561, where the guide line (character art, size etc) is given for the creation of the test target. So long as the document is text only, a bit of modification causes no influence over the results of measurement.

For monochrome test pattern, all letters should be black. For colour test pattern, arbitrary letters should be coloured by using the primary colorants of the printer.

Instead of A4 paper size, the size most commonly used in the country may be used, both for the test page and the copies. This shall be indicated in the specification sheet.

5 Information to be included in the specification sheets

Table 1 defines, for each parameter, the name of the parameter and a short description of the entry. These constitute the information to be included in the specification sheet. Parameters whose properties shall be included in the specification sheets are marked as "R" (required), while other parameters whose properties are recommended to be included are marked as "O" (optional).

The heading of the specification sheet shall indicate that it has been prepared in accordance with this part of ISO/IEC 11160. For every parameter, if any special instruction is not given, the name of the parameter of Table 1 shall be used without change. Non-applicable parameters may be ignored, without changing the order of remaining parameters.

Additional parameters may be adjacently inserted to the related parameter in Table 1 for the purpose of describing the function which is not covered by other parameters.

For a parameter with voluminous description, it may be stated separately and may use a figure or a table. In such case, the caption of the figure or the table shall be identical with the name of parameter shown in Table 1.

The "Remarks and examples" column is provided for the persons who prepare the information sheet, and it is not intended to appear in the specification sheet. The column includes informative examples and normative test methods and descriptions. Test methods to be applied, when not defined in other International Standards, are defined in this column.

Whenever a capacity is given in sheets, the reference paper weight (g/m²) shall be specified

Numbers attached to parameters are not normative but only for convenience.

Table 1 — Information to be included

Parameter	R/O	Description of the entry	Remarks and examples
1 General data			
1.1 Printer class	O	Class 3 or Class 4 printer.	See Annex A for description of classes.
1.2 Machine name, model and/or model number	R	Product name, model number.	
1.3 Type	O	State the machine type.	State if the machine is portable, desk-top or floor-standing for the standard configuration, without optional devices.
1.4 Printing method	R	The printing process used	Such as ink-jet, thermal transfer, electro-photographic (laser), electrophotographic (LED).
1.5 Print resolution	R	Indicate horizontal and vertical dots per 25,4 mm (dpi), in this order. The maximum value shall be indicated in the order of horizontal and vertical. The design capability of the machine to place the dots.	Note that the theoretical writing resolution and the actual printing resolution may be different. If the dot density can be stepped up and down, all grades should be indicated. If technologies which can improve apparent resolution (line smoothing technology, bit depth control for each dot, etc.) are applied, resultant resolution, its method or trade name of such technology should be additionally indicated.
1.6 Tone	O	Indicate the available number of tone or colours in design theory.	
2. Performance data			
2.1 Warm-up time	R	Indicate both 1) and 2). 1) Send the print signal (i.e. click on PC), just after power-on. Measure time in minutes and/or seconds from the power-on to the completion of the first paper ejection. Warm-up time is described as the difference of the measured time and First print out time (2.2). 2) Send the print signal (i.e. click on PC) from power save mode. Measure time in minutes and/or seconds from the print start to the completion of the first paper ejection. Warm-up time is described as the difference of the measured time and First print out time (2.2).	If the value measured by 2) is equal to or longer than the value of 1), indicate both values of 1) and 2). If the value of 1) is longer than the value 2), the value 2) is omissible. The results measured at 23 °C should be indicated. Round off the results to integer number. In the case of less than 10 seconds round off the results to one decimal places and report two significant digits (e. g. from 5,35 to 5,4 seconds). Or after rounding up the results, it may report as "less than or equal to the figure" or "less than the figure". If there is more than one power save mode, indicate the results for each mode, or indicate the longest result.

Table 1 (cont'd)

Parameter	R/O	Description of the entry	Remarks and examples
2.2 First print out time	R	The number of seconds between the initiation of the job until the complete exit of the first sheet	The number of seconds shall be described with the measuring condition and/or the name of international standard which was used for the measurement.
2.3 Continuous print speed	O	<p>Measure the time (t in second) from just after complete discharge of the first sheet to end of discharge of the last sheet (n_{th} sheet) for more than one minute. The sustained throughput (S) is calculated using following equation:</p> $S = \frac{60}{t \div (n - 1)}$ <p>For printers with duplex mode, measure the throughput at duplex printing mode. Indicate;</p> <p>For simplex print: pages/min</p> <p>For duplex print: images/min (doubling S obtained from the above equation)</p>	<p>The Continuous Print Speed shall not include the time for maintenance, such as cleaning.</p> <p>Significant digits for the sustained throughput (S in sheets/min) are,</p> <p>For less than 10 sheets/min : two digits ",0" can be deleted and make integer number (for example, 6,0 to 6).</p> <p>For 10 pages/min or more and less than 100 pages/min: two digits or three digits may be selected at company's option.</p> <p>For 100 pages/min or more : three digits</p> <p>Describe the value whether it is for monochrome, colour or both.</p> <p>For the test pattern, see Clause 4.</p>
2.4 Printing productivity	R	State FSOT and ESAT parameters and a pointer to the full test report.	ISO/IEC 24734.
3 Control			Item 3.2 may be described together with item 3.1 at the end of 3.1.
3.1 Interface for hardware connection	R	State the hardware connections available and the name of standard for connection, etc.	For example, IEEE1284, USB(2.0) , 100BASE-TX/10BASE-T, wireless LAN(IEEE 802.11b). For optional feature, state as it is.
3.2 Interface for connection control	O	Identify communication protocols.	For example, TCP/IP, IPX/SPX, IPP, etc.
3.3 Command	R	Identify page description language, emulation and/or host-based.	
3.4 Supported operating systems	O	Identify the supported operating systems.	
3.5 Processor	O	Identify the trade name and clock frequency of Processor.	

Table 1 (cont'd)

Parameter	R/O	Description of the entry	Remarks and examples
3.6 Memory			This item may be described together with item 3.6.1 and 3.6.2.
3.6.1 Standard memory	R	Describe the capacity of memory in number of bytes.	Megabyte (MB) or gigabyte (GB), etc.
3.6.2 Optional memory	O	Describe the capacity of optional memory in number of bytes. Method of installation may also be described.	Megabyte (MB) or gigabyte (GB), etc. Name of card or DIMM type may also be described.
3.6.3 Hard disc drive	O	Describe the capacity of hard disk in number of bytes.	If the hard disc is optional, describe as it is.
4 Fonts			
4.1 Standard fonts	O	List fonts or indicate number of fonts available in the printer. List the character set of standard equipment available.	Times Regular Type 1, Roman Italic True Type, 35 Type 1 fonts, 45 True Type
4.2 Optional fonts	O	List fonts and character set optionally available. List the methods for optional font handling capability.	Download from a host computer. Additional hard disk needed for fonts.
5 Paper and paper handling			Item 5.1 to 5.5 for each paper input device may be described together.
5.1 Paper type	R	List paper type available. ISO/IEC 11160-2:2013 https://standards.iteh.ai/catalog/standards/sist/b92ddc64-398c-410c-9807-7870ba667228/iso-iec-11160-2-2013	Plain paper, recycled paper, coated paper, transparencies, labels, postcards, envelopes, etc. If paper types are different between paper input devices, describe them for each input device.
5.2 Paper size	R	State paper size by the name of standard paper sizes or in millimetres (mm) of paper which is acceptable for the printer.	Name of standard paper sizes (ISO 216): A4, B4, etc. For free size paper, indicate in millimetres (mm) of width (maximum and minimum) and length (maximum and minimum), etc. If these are not same between paper input devices, describe them for each device.
5.3 Printable area	O	State the print margin	For example, print margin for top, bottom and both sides is 4,1 mm.
5.4 Paper weight	R	Minimum and maximum in g/m ² .	Describe for each paper feeding device.