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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**

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*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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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrical Commission) form the specialised system for worldwide standardisation. National Bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organisation to deal with particular fields of mutual interest. Other international organisations, governmental and non-governmental, in liaison with ISO and IEC, also take part to the work.

In the field of information technology, ISO and IEC have established a joint technical committee ISO/IEC JTC1. 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.

International Standard ISO/IEC 11160-2, was prepared by Joint Technical Committee ISO/IEC JTC1, *Information technology*, Subcommittee SC28, *Office equipment*.

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

- *Part 1: Class 1 and Class 2 printers*
- *Part 2: Class 3 and Class 4 printers*

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

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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 the users in selecting a printer which meets their requirements. ISO/IEC 11160 specifies the minimum information that shall be included in the specification sheets of printers so that users may compare the characteristics of different machines. 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 will accommodate different classes of printers. This part of ISO/IEC 11160 accommodates Class 3 and Class 4 printers, as defined in annex B.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 11160. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 11160 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 216:1975 ¹⁾ ,	<i>Writing paper and certain classes of printed matter - Trimmed sizes - A and B series.</i>
ISO 554: 1976,	<i>Standard atmospheres for conditioning and/or testing - Specifications</i>
ISO 7779:1988 ¹⁾ ,	<i>Acoustics - Measurement of airborne noise emitted by computer and business equipment.</i>
ISO 9295:1988,	<i>Acoustics - Measurement of high-frequency noise emitted by computer and business equipment.</i>
ISO 9296:1988,	<i>Acoustics - Declared noise emission values of computer and business equipment.</i>
ISO/IEC 10561 ¹⁾ ,	<i>Information technology - Printing devices - Method for measuring printer throughput.</i>
IEC 950:1991,	<i>Safety of information technology equipment, including electrical business equipment.</i>

3 Conformance

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

4 Test and measurement conditions

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

- Temperature: 18 °C to 25 °C
- Relative humidity: 30 % to 70 %
- Line Voltage: rated input voltage
- Line Frequency: rated frequency
- Paper size: A4

¹⁾ Currently under revision

- Paper weight: 60 g/m² to 90 g/m²
- Paper transport direction: standard direction
- Test pattern: as specified

The test conditions shall be indicated in the specification sheet.

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.

When weight of paper (g/m²) is given, it is assumed that the paper has been conditioned in the standard atmosphere defined in ISO 554 (temperature 20 °C ± 2 °C; relative humidity 65 % ± 5 %).

5 Information to be included in the specification sheets

Table 1 defines, for each parameter, the number and name of the parameter and a short description of the entry. These constitute the information to be included in the specification sheet.

The heading of the specification sheet shall indicate that it has been prepared in accordance with this part of ISO/IEC 11160. The numbers and headings of Table 1 shall be used. Not applicable parameters may be ignored, without changing the number of other parameters.

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 "Remarks and Examples" column is intended to be informative. 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.

Table 1 - Information to be included

Parameter	Description of the entry	Remarks and examples
1 General data		
1.1 Printer class	Class 3 or Class 4 printer.	See Annex B for description of classes.
1.2 Machine name, model and/or model number	Product name, model number.	
1.3 Type		State if the machine is portable, desk-top, or floor-standing.
1.4 Printing method	The printing process used.	ink-jet, thermal transfer, electrophotographic, ion deposit.
1.5 Dot density	Horizontal and vertical dots per 25,4 mm (dpi) . 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.

Table 1 (cont'd)

Parameter	Description of the entry	Remarks and examples
1.6 Line smoothing	Available/not available	Indicate smoothing technology by type or trademarks
1.7 Dot depth	Indicate the number of bits per dot available	
1.8 Colour printing		
1.8.1 Monochrome	Specify which colour.	
1.8.2 Multi-colour	Available/not available.	Also known as functional colour, spot colour, highlight or accent colour. State the number of discrete colours that can be printed by colorants residing in the machine.
1.8.3 Full colour	Available/not available.	The full colour is often described as YELLOW, MAGENTA, CYAN or YELLOW, MAGENTA, CYAN, BLACK. State if the machine can print full colour, continuous tone, half-tone or both.
1.8.4 Colour transparencies	Available/not available.	Indicate if the colour can be projected.
2 Performance data		
2.1 Rated engine speed	First Page: Time in seconds Continuous Print: Pages Per Minutes (PPM)	Specify if monochrome, colour or both rates are listed. This parameter is a declaration of manufacturer dealing with the mechanical aspect of the printer only.

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Table 1 (cont'd)

Parameter	Description of the entry	Remarks and examples
2.2 Warm-up time	1) Time in minutes and/or seconds from power up to ready state. 2) Time in minutes and/or seconds from power saver mode to ready state.	If the machine is pre-heated, this shall be indicated. If the printer is off, it shall measure the time between power on and the indication of a ready status. If the printer is in the power saver mode, it shall measure the time between the start command and the indication of a ready status or the beginning of printing. The value is rounded to the nearest whole number of seconds.
2.3 Recommended monthly print volume	Manufacturers recommended range of use: number of pages per month.	For the determination of this parameter, the month is considered consisting of 20 days of 8 hours each. Specify if monochrome, colour or both rates are listed.
2.4 First Page Out Time	Time in seconds from the moment the mechanical engine motion starts until the moment the first sheet of paper is completely ejected into the output tray. To measure this parameter, a document as described in Annex D shall be created and sent to the printer.	Report two significant digits (e. g. 4.5 seconds, 11 seconds).
2.5 Sustained Throughput	Performance in Pages Per Minute (PPM) that the printer is capable of sustaining. To measure this parameter, a document as described in Annex D shall be created and sent to the printer. Measure the time (t, in seconds) between the first and the second page being ejected into the output tray. The sustained throughput (S) is calculated using the equation: $S = \frac{60}{t}$ The value S (PPM) shall be rounded off to at least two significant digits.	

Table 1 (cont'd)

Parameter	Description of the entry	Remarks and examples
3 Control		
3.1 Interface for hardware connection	State the hardware connections available.	Centronics, RS232, RS422, Token Ring, Ethernet. If automatic switching feature is available, state the feature here.
3.2 Interface for connection control	Identify communication protocols.	XON/XOFF, TCP/IP, AppleTalk. If multiple protocols are supported, state the feature here.
3.3 Interface for printer control	Identify printer control languages, including version.	PCL5, PostScript, Escape P, ISO/IEC 10180.
3.4 Memory		
3.4.1 Standard memory	Size in KB or MB.	
3.4.2 Optional memory	Size in KB or MB. Specify the method.	Optional memory that can be added to support additional fonts or font processing. PCMCIA, SIMM.
3.5 Control panel	Describe the kind and size of the operator panel and display.	Alphanumeric 20 character display with 4 buttons and 4 status LED.
4 Printing features		
4.1 Printing margins	In millimetres, from the top, bottom, left and right edges of the paper.	Area in which printing is not possible. (This area is given on the condition that the print paper is fed through its ideal position). If the printing margins vary with paper sizes, this situation should be described.
4.2 Duplex printing	Available/not available.	State if special paper or accessories are available. Options shall be listed under parameter 16.

Table 1 (cont'd)

Parameter	Description of the entry	Remarks and examples
4.3 Other printing features	Manufacturer may highlight features or capabilities.	Print Image Rotation: Printer panel control capability to rotate the image which is described by incoming data. Image shift Fit Image to paper
5 Fonts and character sets		The capabilities of the basic machine and the capabilities that can be added by additional print elements (external cartridges, external print elements, downloadable fonts) shall be clearly identified.
5.1 Resident Fonts	List fonts or number of fonts available in the printer.	Times Regular Type 1, Roman Italic True Type, 35 Type 1 fonts, 45 True Type
5.2 Standard Character Set	List the character set (Glyph Index Mapping) available.	Roman-8, ISO 8859-1 If the external cartridge or card with character sets is packed with printer, state here.
5.3 Optional Capabilities	List fonts and character set optionally available. List the methods for optional font handling capability.	Number of PCMCIA slots for the font cards. Download from a host computer. Additional hard disk for fonts.
6 Output material		
6.1 Paper type		Plain, coated, thermal paper. The manufacturer shall specify for which characteristics of the paper, other than normal paper, normal warranted performance can be assured.
6.2 Special material		The manufacturer shall specify the printing materials that can be processed, possibly with degraded performances, e.g. Transparent sheets, labels, envelopes and recycled paper.

Table 1 (cont'd)

Parameter	Description of the entry	Remarks and examples
6.3 Paper size	State the minimum and maximum width and the minimum and maximum length of the paper. This indication can be given either in millimetres or by quoting standard paper sizes.	
6.3.1 Cut sheets	Available/not available. Standard name and/or sizes of paper in millimetres.	A sizes (ISO 216), B sizes (ISO 216), North American sizes.
6.3.2 Paper in continuous forms (roll or fanfold)	Available/not available. Width, maximum and minimum in millimetres; length in meters; diameter of the roll, in millimetres.	Indicate if length is manually pre-selectable (maximum and minimum); and if the paper is cut automatically.
6.3.3 Envelopes	State minimum and maximum sizes of envelopes that can be printed.	Sizes according to ISO 269.
6.4 Paper weight	Minimum and maximum in g/m ² .	Specify if for sheet or roll.
7 Paper handling		
7.1 Paper supply device	Manual, cassette, tray, drawer.	Indicate which are standard and which are optional. Indicate the number of supply devices that can be attached simultaneously.
7.2 Paper supply capacity	For roll paper supply: diameter and length of the roll. For cut sheets paper supply: number of sheets for each paper supply device, with the paper weight.	
7.3 Paper feed orientation	Long edge feed or short edge feed.	Indicate the paper size.
7.4 Paper path options	Indicate whether the paper is passed through the printer in a straight or curled path. State all possible choices.	Generally used to indicate whether paper can be passed through a printer with minimal curl. Especially important for envelopes, heavy stock paper and transparency.