



# Product-neutral specification for printers

Guidelines version 1.1

## ■ Legal notice

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# Inhaltsverzeichnis

Introduction	3
1 Performance categories	5
2 Printing	6
3 Printer languages and ports	7
4 Print material	8
5 Paper size	9
6 Certifications and distinctions	10
7 Final processing	11
8 Requirements of an administrative tool	12
8.1 Technical prerequisites	12
8.2 Provision of information for the administrative tool	12
8.3 Operability and device management	12
9 Data security	13
10 possible service levels (support)	14
11 Procurement models	15
11.1 Details	15
11.2 Steps for planning the procurement process	16
12 Consumables	17
13 Valuation of offers	18
14 Evaluation of utility costs and power consumption	19
15 System and example »Price per page calculation«	20
16 Glossary	21

## Introduction

These guidelines have been developed by a working group of the Beschaffungsamt des Bundesministeriums des Innern (BeschA/Purchasing authority of the Federal Ministry of the Interior), the Bundesamt für Aufrüstung, Informationstechnik und Nutzung der Bundeswehr (Federal Office of Bundeswehr Equipment, Information Technology and In-service Support), the Bundesagentur für Arbeit (Federal Employment Agency) and the Bundesverband Informationswirtschaft, Telekommunikation und neue Medien e.V. (BITKOM/Federal Association for Information Technology, Telecommunications and New Media).

The aim of this document is to provide public purchasers within the Federal Government, the Länder and at local government level, as well as purchasers working for companies and private institutions – such as churches and associations – with reliable, discerning assistance in compiling product-neutral invitations to tender for the procurement of printers.

These guidelines exclusively concern printers to be used as workplace, work group or department printers.

Information about the product-neutral invitation to tender for multi-function (4-in-1) devices will be added in version 2.0.

Product-neutral invitations to tender are necessary because both European and German regulations for awarding public contracts largely prohibit the mentioning of brand names in public invitations to tender. This is set forth in European legislation's discrimination ban in Article 23 of Guideline 2004/18 and in § 7 (4) VOL/A (German regulations for awarding contracts) and § 8 VOL/A EG (German regulations for awarding contracts with a value above the EU threshold). This prohibition ensures that manufacturers and suppliers cannot be excluded from the circle of potential bidders based on discriminatory wording in the invitation to tender.

These guidelines are of assistance in that they support compliance with the legal requirements and thus ensure fair competition, and also refer to and describe current technical developments. Because the benchmarking methods applied to notebooks and desktop PCs are unsuitable for printers, compliance with the legal requirements is achieved by means of product-neutral specifications, the core components of which are technical characteristics and standards.

Aside from these fundamental requirements, the regulations for awarding public contracts also stipulate standards with respect to energy consumption. For instance,

§ 4 of the Vergabeverordnung (VgV / German regulation on the awarding of public contracts) requires that, when awarding contracts for »technical devices«, the energy efficiency and energy consumption must, as a rule, be considered.

These guidelines will be regularly updated in order to keep abreast of current developments.

They are available at [www.itk-beschaffung.de](http://www.itk-beschaffung.de).

This document would not have been possible without the intensive collaboration of the members of the working group »product-neutral specifications«.

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# 1 Performance categories

	b/w DIN A4	b/w colour DIN A4	b/w DIN A3	b/w colour DIN A3
<b>Work station printer</b> <ul style="list-style-type: none"> <li>■ The printing volume should amount to between</li> <li>■ 500 – 2,000 pages per month</li> <li>■ Paper supply of min. 250 sheets</li> <li>■ Plus at least one additional paper cassette</li> <li>■ Sheet feeder</li> </ul>	At least 25 ppm  Max. 10 sec. for printing the first page	At least 20 ppm colour  Max. 15 sec. for printing the first page	At least 20 ppm  Max. 10 sec. for printing the first page	At least 15 ppm colour  Max. 15 sec. for printing the first page
<b>Work group printer</b> <ul style="list-style-type: none"> <li>■ The printing volume should amount to between</li> <li>■ 1,500 – 10,000 pages per month</li> <li>■ Paper supply of min. 250 sheets</li> <li>■ Plus at least one additional paper cassette</li> <li>■ Multipurpose feeder</li> </ul>	At least 30 ppm	At least 25 ppm colour	At least 25 ppm	At least 20 ppm colour
<b>Department printer</b> <ul style="list-style-type: none"> <li>■ The printing volume should amount to between</li> <li>■ 8,000 – 25,000 pages per month</li> <li>■ Paper supply of min. 500 sheets</li> <li>■ Paper supply of min. 1,500 sheets</li> <li>■ Multipurpose feeder</li> </ul>	At least 40 ppm	At least 35 ppm colour	At least 35 ppm	At least 30 ppm colour

Please note:

The recommended printing volume refers to DIN A4 black/white. Colour printing and printing DIN A3 are to be considered in addition.

## 2 Printing

Duplex printing should be required in all performance categories.



## 3 Printer languages and ports

Minimum requirements:

- USB (min. 2.0)/networking capability RJ 45 10/100 is a minimum requirement for all performance categories
- PCL 6 and PS 3 may be requested as emulations

## 4 Print material

The device must be capable of processing the following materials:

- Grammage (paper weight):  
at least 64-160 g/m<sup>2</sup> for all three performance categories from at least one paper feeder including single sheet feeding
- Normal paper
- Recycling paper that corresponds to DIN EN 12281

May be requested as needed:

- Transparent foil depending on the print technology
- Envelopes
- Labels

## 5 Paper size

The device must be capable of processing the following paper sizes:

- DIN A4
- DIN A5
- DIN A3 (only with DIN A 3-devices)

Optional if needed:

- DIN A6 paper size
- DIN B5 (envelope)
- DIN C6 (envelope)

## 6 Certifications and distinctions

All legal requirements that apply to the sale of printers and multi-function devices are listed in a separate guideline available at [www.itk-beschaffung.de](http://www.itk-beschaffung.de).

This includes, in particular, requirements relating to safety and electro-magnetic compatibility as well as environmentally relevant provisions.

Voluntary certifications, which emphasise certain product features or serve as proof of compliance with special requirements in certain usage environments, do not classify as certifications or distinctions in this respect.

The following is a list of the certificates that are relevant for specific requirements, together with their domains of applicability for printers and multi-purpose systems. The procuring party must itself decide which of these documents are required for the respective domain of applicability.

It is important to differentiate between the certificate as potential proof, and actual criteria or requirements. The requirements should be clearly formulated in an invitation to tender. Certificates can provide proof that such criteria and requirements were complied with. Manufacturer declarations should be considered as proof insofar as they can be properly substantiated or comply with international standards.

In all test procedures, the results obtained generally apply to the respective overall system consisting of the (basic) unit and the consumables (such as toner/ink and paper) used in corresponding test procedures. These can be recommended consumables or consumables promoted by the manufacturer.

Certificate/ distinction	Content and domain of applicability	Recommended domain of applicability	Certificate issued by
Suitability for producing original documents, duplicates and certified copies of notarial deeds and other documents corresponding to §29 of the Dienstordnung für Notare (DONot/Official Regulations for German Notaries)	Proof of document authenticity for the entire system printer and/or multifunction device.	Creation of deeds, contracts and documents of a contractual nature	Certificate from the Papiertechnische Stiftung (»PTS test certificate«)
GS certification (»Tested Safety«)	Proof of conformity with product safety, the Produktsicherheitsgesetz (Product Safety Act) and applicable ergonomic requirements.	General	Certificate from an accredited GS test centre
Environmental label	Environmentally relevant features of a product (see environmental guideline)	General (details are described in the environmental guideline)	Manufacturer declaration (e.g. IT eco-declaration), certificates (e.g. Blue Angel), references to the published databases e.g. Energy Star)

## 7 Final processing

The following functions may be required as an evaluation criterion for department printers:

Final processing:

- Sorting (finisher)
- Stapling

# 8 Requirements of an administrative tool

## ■ 8.1 Technical prerequisites

- It should be possible to access network-compatible printers from an operating system via a web browser.
- The administrative tool must be capable of being used on common operating systems.
- The administrative tool must support at least SNMP v2.

## ■ 8.2 Provision of information for the administrative tool

The administrative tool's interface must be in German and feature different user roles (e. g. Admin, Helpdesk etc.).

- The administrative tool must have a device list with a tabular overview. The status of the displayed devices must be highlighted:
  - If applicable, the status and error messages should be forwarded to multiple authorised persons. This promptly informs them of any critical errors such a paper jam, an empty toner cartridge etc.
  - Export of reports on system utilization e.g. the number of printed pages or number of colour pages.

## ■ 8.3 Operability and device management

- The devices should be capable of being sorted and filtered according to different criteria in the overview with a mouse click.
- It must be possible to manually and automatically include new devices in the administrative tool.

Manufacturers provide relevant software solutions for the administration or management.

In most cases, users can be provided with browser-based software for the administration of installed printers and a multi-function device. This software provides a complete overview of their entire fleet of network printers and multi-function devices and provides the user with all functions required for efficiently recognising, configuring and managing the device during its entire lifecycle.

The software for automatic print management for the installed printers and multi-function devices allow manufacturers to identify system errors, create service tickets, schedule printer maintenance or arrange for the automatic ordering of consumables.

## 9 Data security

As with all other network components, printers and multi-function devices constitute complex equipment, which may pose a potential risk for the misuse of electronic data in the absence of adequate security. The exact classification of the devices on the network must be coordinated and specified in advance with the responsible IT security officer and, if applicable, the data protection officer (e. g. when printing out personal data).

Through security functions such as:

- secure remote administration (e. g. password protection, IPv6, SNMP v2, certificate administration, ...)
- secure network interfaces (e. g. port and TCP connections, IPSec, 802.1x, secure SNMP, ...)
- saving of data on the hard-drive (e. g. hard-drive encryption and deletion, physical protection, ...)
- secure access (authentication, authorisation, locking of the control panel, confidential printing, LDAP, ...)

potential risks to IT security can be significantly reduced if necessary. However, such functions should only be requested if needed as they may restrict competition or incur additional costs.

## 10 possible service levels (support)

In addition to the statutory warranties and customary commercial guarantees, additional services, which may be subject to charge, can be agreed.

The following requirements are possible depending on respective needs:

- 3, 4 or 5 year on-site service
- On-site service with general replacement of equipment (SWAP)
- On-site service with a reaction time of x hours
- On-site service with maintenance time of x hours
- Availability of the hotline as the notification office x hours y days a week
- Provision of replacement devices at the client's location

Individual agreements can be concluded for the procurement of high availability solutions or security relevant solutions. In such cases it is essential to conduct an assessment of how necessary the requirements are and of the costs that these requirements will incur.



## 11 Procurement models

### ■ 11.1 Details

Invitations to tender are collectively issued device hardware and consumables and their acceptance for the usage period is provided for under the contractual agreement.

The printers and their consumables/wearable parts must be jointly analysed by the parties in order to assess the cost effectiveness over the planned period of use.

Costs incurred by the operation e. g. power consumption and service must also be considered.

For this, the expected printing volume and the planned operating life must be specified as accurately as possible.

Purchase	Purchase and consumption-based billing	Rental/leasing and consumption-based billing	Exclusively consumption-based billing
Purchase of hardware	Purchase of hardware	Monthly rent or leasing of hardware	Hardware accounted for in the price per page
Purchase of consumables/wearable parts	Consumption-based lump sum per page or per toner/ink cartridge	Consumption-based lump sum per page or per toner/ink cartridge	Consumables/wearable parts accounted for in the price per page
Purchase of the defined services	Including the defined services	Including the defined services	Defined services accounted for in the price per page

Models 1-4 specified above require an analysis of the printing behaviour. If an increased level of costs are accounted for in the price per page, the hardware requirement and the expected printing volume must be analysed more accurately.

## ■ 11.2 Steps for planning the procurement process

The following is a plausible procedure for implementing these concepts:

### Analysis

- Infrastructure analysis: Recording of device data
- in addition to the infrastructure analysis, examination of internal work-flows:
  - Evaluation of input systems and procedures
  - Evaluation of applications used to process data

### Conception

- Printing, process and cost optimisation
- (definition of efficient print processes)
- Centralisation/consolidation
- Technology refresh and/or assumption of the printer fleet
- Demand-based positioning and optimisation
- Security and compliance
- Implementation strategy

### Implementation

- Rollout/installation of hardware and software (implementation of a suitable set of rules for printing)
- Disposal

### Fleet management

- Training
- Project management
- Desired service levels (see above TOP 10)
- Systems management
- User-specific and/or customer-specific billing
- Basic metering
- Cost management
- SLA tracking
- Location of devices
- Database and data fusion from all other components
- Systems management

## 12 Consumables

The toner and ink quality must remain consistent for the entire term of the agreement.

The bidder must confirm that the toner and ink fulfil the following stand-ards:

- ISO/IEC 19752 for monochrome laser printers
- ISO/IEC 19798 for colour laser printers
- ISO/IEC 24711 for inkjet printers

The submission of an EU safety data sheet may also be required.

## 13 Valuation of offers

The criteria for product-neutral invitations to tender are described in the above sections. Bidders prepare offers based on this specification.

These bids are then assessed and evaluated by the awarding body. The awarding body is obliged to award the contract to the most cost-efficient bid. As regards the evaluation matrix, the »Unterlage zur Ausschreibung und Bewertung von IT-Leistungen« (UfAB / Document on inviting tenders for and evaluating IT services) in its current version offers extensive support ([http://www.cio.bund.de/DE/IT-Beschaffung/UfAB/ufab\\_node.html](http://www.cio.bund.de/DE/IT-Beschaffung/UfAB/ufab_node.html)).

## 14 Evaluation of utility costs and power consumption

For many of the evaluation criteria, evaluation on the basis of written bids is sufficient. Specifications may exist, however, the fulfilment of which – and thus the evaluation of which – can only be properly assessed on the basis of the actual object of those specifications. These evaluation criteria include, for instance,

- utility costs based on the expected print output
- power consumption

Utility costs can be determined using the enclosed price per page calculation, which is based on the costs per printed page. These costs are projected over the planned lifetime and the monthly printing volume is added as a monetary value to the printer's acquisition costs.

The standardised TEC value can be used to determine expected power consumption. The TEC value expresses average weekly power consumption (TEC = Typical Electricity Consumption) of electrical products based on customary office applications.

The TEC standard currently does not apply for ink-jet printers and bank note printers ([http://www.energystar.gov/ia/partners/product\\_specs/program\\_reqs/Imaging\\_Equipment\\_Program\\_Requirements.pdf?o7fd-6oee](http://www.energystar.gov/ia/partners/product_specs/program_reqs/Imaging_Equipment_Program_Requirements.pdf?o7fd-6oee)).

Alternatively, the information of the bidders concerning power consumption can be evaluated in the various operating modes (e.g. energy saving mode, printing mode, etc.).

The costs for power consumption can be multiplied with the local electricity rate and projected onto the costs for the planned lifetime, and then also added to the bid as an additional monetary amount.

Alternatively, the performance evaluation can be carried out based on the specified power consumption, whereupon lower consumption is to be awarded higher performance points and vice-versa.

## 15 System and example »Price per page calculation«

This system can be used to determine the printing costs incurred over the planned operating lifetime with the purchase model.

The system requires that the hardware and consumables are procured together in one invitation to tender. Otherwise they can not be included in the calculation. The information on performance and price per unit serve as the basis for the calculation.

All costs incurred, which are not covered at the same time by the service concept provided, can be covered by the bidder.

ISO/IEC 19752 is used as a guideline for determining the printing volume for monochrome laser printers, ISO/IEC 19798 for colour laser printers and ISO/IEC 24711 for inkjet printers. The test pattern according to ISO/IEC 19752 is used for monochrome printers and the standard test document according to ISO/IEC 24712 is used for colour laser and inkjet printers.

### Sample calculation: A4 printer – model xy

Article	Performance	per unit	Price	Factor	Price per page
Black toner	10,000	Page	50.00	1	0.005
Drum	20,000	Page	120.00	1	0.006
Leftover ink container	20,000	Page	20.00	1	0.001
<b>Total costs per page in EUR:</b>					<b>0.012</b>

Other costs:

- e.g. maintenance kits

A printing volume of 750 A4 pages per month over four years is used as a cost basis.

Cost calculation for four years:		Print output to be considered (36,000 pages less original equipment e. g. 10,000 page toner)	Period of use 48 months
Toner price per page	0.005	26,000	130.00
Price per page drum	0.006	16,000	96.00
Leftover ink container	0.001	16,000	16.00
<b>Total costs for 48 months in EUR:</b>			<b>242.00</b>

## 16 Glossary

- **ADF**  
Automatic Document Feeder  
(automatic original tray)
  
  - **Consumables**  
Consumables are operating supplies. For printers and multi-function devices, they include e.g. the pigment (ink, toner, etc.) and the paper.
  
  - **Materials subject to wear**  
Parts of the printer/multi-function device that can also be replaced, e.g. the fixative device.
  
  - **Printing of first page**  
The time specification »printing of first page« is calculated from when the printer leaves the timeout state and begins printing the first page of a print job.
  
  - **Ppm**  
Ppm (pages per minute) applies to a print resolution of at least 600 x 600 dpi in b/w and colour.
  
  - **Recommended printing volume:**  
The recommended printing volume always refers to one month.
  
  - **Recovery time:**  
Period of time the contractor has to resolve faults and/or rectify defects. The period begins with the receipt of a fault and/or defect notice and continues exclusively during the agreed service periods.
  
  - **Response time**  
Period of time the contractor has to begin maintenance work. It begins with the receipt of the fault message within the agreed service periods and runs exclusively during the agreed service periods.
  
  - **Sheet feeder**  
An integrated manual feeder, which individual sheets can be fed into.
  
  - **TEC values**  
TEC – »typical energy consumption«. The TEC for printers is expressed in kWh per week.
  
  - **Timeout**  
(according to the Energy Star terminology): The idle state when the printer does not produce any printed material, is in an operational state, has not yet entered into power saving mode and is ready to return to printing operation with a minimal delay. All device functions can be activated in this state and the device must be capable of returning to printing operation in that it responds if the device's input possibilities are used. External electrical impulse (such as a data network impulse, receipt of remote copies or remote control) and direct technical operator interventions (such as flipping a switch or pushing a button) also fall under input possibilities.
- 
- Please note: Timeout is the state the printer is in directly after having processed a print job.
-

The Federal Association for Information Technology, Telecommunications and New Media (BITKOM) represents more than 2,000 companies in Germany. Its 1,200 direct members generate an annual sales volume of 140 billion Euros annually and employ 700,000 people. They include providers of software and IT services, telecommunications and Internet services, manufacturers of hardware and consumer electronics, and digital media businesses. BITKOM campaigns in particular for a modernization of the education system, for an innovative economic policy and a future-oriented Internet policy.

The Purchasing authority of the Federal Ministry of the Interior / BeschA purchases goods and services for 26 federal authorities, government-funded foundations and internationally active organisations. Its product portfolio is extremely wide-ranging, including things as diverse as alarm technology, tents and helicopters, as well as a great variety of services. In 2010, the Beschaffungsamt awarded a total of 1,111 contracts with a total volume of EUR 1,046.3 million.



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