INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 12071-4

First edition
1997-04-15

Information technology — International Standardized Profile FCG-nnn — Computer Graphics Metafile interchange format —

Part 4:
FCG33 — Advanced Presentation and Visualization (APV)

Technologies de l'information — Profil normalisé international FCG-nnn — Format d'échange de métafichier en infographie —

Partie 4: FCG33 — Visualisation et présentation avancées (APV)

Reference number
ISO/IEC ISP 12071-4:1997(E)

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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. In addition to developing International Standards, ISO/IEC JTC 1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or a set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 12071-4 was prepared with the collaboration of

— Asia-Oceania Workshop (AOW);

— European Workshop for Open Systems (EWOS);

— Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 12071 consists of the following parts, under the general title *Information technology — International Standardized Profile FCG-nnn — Computer Graphics Metafile interchange format*:

— *Part 1: FCG11 — Basic Scientific and Technical graphics (BST)*

— *Part 2: FCG23 — Advanced Scientific and Technical graphics (AST)*

— *Part 3: FCG32 — Basic Presentation and Visualization — Model Profile*

— *Part 4: FCG33 — Advanced Presentation and Visualization (APV)*

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Introduction

ISO/IEC ISP 12071 is defined within the context of Functional Standardization in accordance with the principles specified in ISO/IEC TR 10000, "Framework and Taxonomy of International Standardized Profiles".

This part of ISO/IEC ISP 12071 was developed within EWOS (Structured Multimedia Group) with input from OIW through the Regional Workshop Coordination Committee (RWS-CC). RWS-CC requested AOW to explicitly or tacitly support the progression of the work. Input to the process was also made by JTC1/SC24 who provided CGM expertise. The work was harmonized at a meeting in June 1994 prior to PDISP ballot.

This part of ISO/IEC ISP 12071 provides a CGM version 3 profile suitable for advanced presentation and visualization, such as imaging, scientific visualization.

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Information technology — International Standardized Profile FCG-nnn — Computer Graphics Metafile interchange format —

Part 4:

FCG33 - Advanced Presentation and Visualization (APV)

1 Scope

1.1 General

The Computer Graphics Metafile provides a file format suitable for the storage and retrieval of picture information. The file format consists of a set of elements that can be used to describe pictures in a way that is compatible between systems of different architectures and devices of differing capabilities and design.

The APV profile, described in this part of ISO/IEC 12071, defines a subset of CGM elements, sets limits and generation and interpretation behaviour according to the rules for profile definition defined in ISO/IEC 8632. The APV profile provides a CGM version 3 profile suitable for advanced presentation and visualization, such as imaging, scientific visualization.

1.2 Position within the taxonomy

APV is one of four core profiles defined within the taxonomy for CGM profiles. These are shown in Figure 1 in diagramatic form. The diagram uses the following conceptual framework to define profiles:

1) CGM version — this is a part of the standard and describes the group of elements available to the profile

2) complexity of the problem

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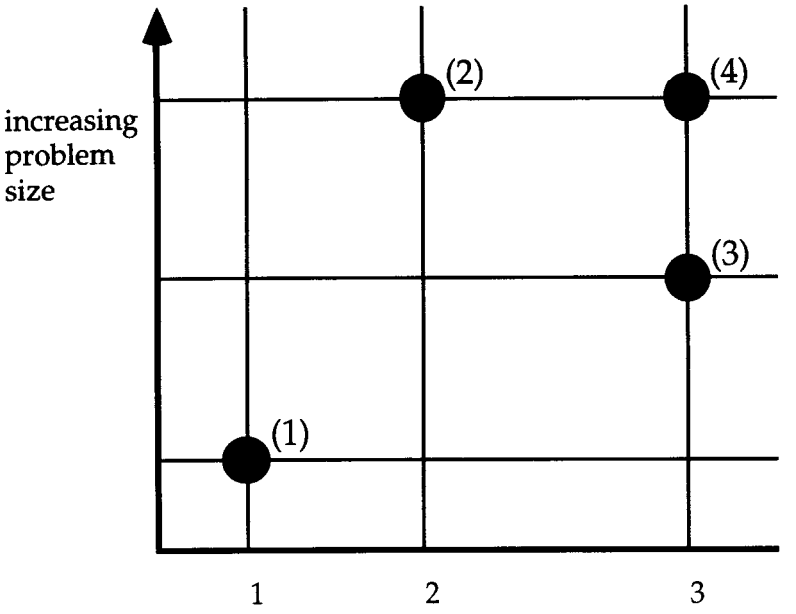

Figure 1— The 4 Core Profiles for CGM

The four core profiles (as indicated in Figure 1) are:

	Taxonomy identifier:	Profile Name:
1	FCG-11	Basic Scientific and Technical graphics (BST) e.g. business presentation graphics, simple desk top publishing
2	FCG-23	Advanced Scientific and Technical graphics (AST) e.g. CAD, mapping, earth sciences
3	FCG-32	Basic Presentation and Visualization — the Model Profile from the CGM standard, e.g. graphics arts, high end desk top publishing
4	FCG-33	Advanced Presentation and Visualization (APV) e.g. imaging, scientific visualization.

This part of ISO/IEC ISP 12071 defines the APV profile.

1.3 User requirements and scenario

This part of ISO/IEC ISP 12071 provides a CGM version 3 profile, APV, suitable for advanced presentation and visualization, such as imaging, scientific visualization.

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2 Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12071. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 12071 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintain published editions of its current Recommendations.

ISO/IEC 8632-1:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 1: Functional specification.*

ISO/IEC 8632-2:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 2: Character encoding.*

ISO/IEC 8632-3:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 3: Binary encoding.*

ISO/IEC 8632-4:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information - Part 4: Clear text encoding.*

ISO/IEC 8632:1992/Amd.1:1994, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information* (all parts) - *AMENDMENT 1 - Rules for profiles.*

ISO/IEC TR 10000-1:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: General principles and documentation framework (third edition).*

ISO/IEC TR 10000-2:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI profiles (fourth edition).*

3 Definitions

For the purposes of this part of ISO/IEC ISP 12071, the definitions given in ISO/IEC 8632:1992 apply.

4 Abbreviations

For the purposes of this part of ISO/IEC ISP 12071, the abbreviations given in ISO/IEC 8632:1992 apply.

5 Conformance

Conformance of metafiles to ISO/IEC 8632 is defined in terms of conformance to profiles. A metafile conforms to ISO/IEC 8632 if it conforms to a profile. A metafile may conform to ISO/IEC 8632 if it conforms to the APV profile defined in this part of ISO/IEC ISP 12071.

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6 Specification of the APV Profile

This clause completes the Profile Pro Forma from ISO/IEC 8632 (Amendment 1) as required by the standard and is detailed in the following tables which are copied, including the table numbers, from that standard. The corrections which have been approved by ISO are marked up on the tables. The references in the pro forma are to ISO/IEC 8632 and to ISO/IEC 8632 Amendment 1.

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Table 13 - Metafile rules

Functionality	Specifications - PPF	Specifications - Model Profile
T.13.1	Same as Model Profile ☑	
Encodings	Select 1 or more encodings: Binary ☐ Character ☐ Clear text ☐	Select 1 or more encodings: Binary ☑ Character ☑ Clear text ☑
T.13.2	Same as Model Profile ☑	
Number of pictures	Number of pictures permitted in a metafile: minimum (≥0)? maximum (≥0 or no limit)? Other:	Number of pictures permitted in a metafile: minimum (≥0)? *1.* maximum (≥0 or no limit)? *No limit.* Other: *None.*
T.13.3	Same as Model Profile ☑	
Empty pictures	Are pictures allowed which have no graphical primitives? (yes/no) Other:	Are pictures allowed which have no graphical primitives? (yes/no) *Yes.* Other: *None.*
T.13.4	Same as Model Profile ☑	
Metafile size	Any restrictions on metafile size? Other:	Any restrictions on metafile size? *None.* Other: *None.*

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Table 14 - Multi-element rules

Functionality	Specifications - PPF	Specifications - Model Profile
T.14.1 Colour References: 7.5.4.1	Same as Model Profile ☑	
	Select which rule applies to each metafile (choose 1): Either all colours or none shall be defined. ☐ All colours shall be defined. ☐ No colours shall be defined. ☐ Are colour indexes allowed to be redefined within a picture or metafile? (yes/no) Any restrictions on the number of distinct colours used within a picture or metafile? (Monochrome metafiles shall use at most two distinct colours.) Are conformance categories defined? (yes/no) If yes, specify. Other:	Select which rule applies to each metafile (choose 1): Either all colours or none shall be defined. ☑ All colours shall be defined. ☐ No colours shall be defined. ☐ Are colour indexes allowed to be redefined within a picture or metafile? (yes/no) *No.* Any restrictions on the number of distinct colours used within a picture or metafile? (Monochrome metafiles shall use at most two distinct colours.) *None.* Are conformance categories defined? (yes/no) *Yes.* If yes, specify. *3 categories: monochrome, greyscale, and colour.* Other: *None.*
T.14.2 Line primitives - geometric degeneracies References: 7.5.4.3	Same as Model Profile ☑	
	Geometric degeneracies are: Permitted ☐ Prohibited ☐ If permitted, graphical meaning of the degeneracy: Other:	Geometric degeneracies are: Permitted ☑ Prohibited ☐ If permitted, graphical meaning of the degeneracy: ***A line primitive element, whose entire locus is a single point, denotes a graphical dot which is a filled circle, with diameter equal to the current line width and colour equal to the current line colour.*** Other: *None.*

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Table 14 - Multi-element rules (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.14.3 Filled area primitives - geometric degeneracies References: 7.5.4.4	Same as Model Profile ☑	
	Geometric degeneracies are: Permitted ☐ Prohibited ☐ If permitted, graphical meaning of the degeneracy: Other:	Geometric degeneracies are: Permitted ☑ Prohibited ☐ If permitted, graphical meaning of the degeneracy: ***A filled-area primitive element, whose entire locus is either a single point or a line has the following meaning:*** ***- If the locus of a filled-area primitive is a single point, then the meaning is a dot (which is a filled circle).*** ***- If the locus of a filled-area primitive is a non-degenerate line segment, then the meaning is a line.*** ***The dot or line is displayed with the fill colour if EDGE VISIBILITY is 'off', unless INTERIOR STYLE is 'empty', in which case it is not rendered. If EDGE VISIBILITY is 'on', the interior treatment is the dot or line displayed in the fill colour, and then a dot or line superimposed with the current edge attributes.*** Other: *None.*
T.14.4 Graphical text strings References: 7.5.4.5	Same as Model Profile ☐	
	Minimum string length (bytes): 0 Maximum string length (bytes): 1024 Any restrictions on the use of ISO/IEC 2022 switching controls? As Model Other: None	Minimum string length (bytes): *0.* Maximum string length (bytes): *254.* Any restrictions on the use of ISO/IEC 2022 switching controls? ***Any character set used in the metafile which is accessed by ISO/IEC 2022 switching techniques shall be in the Character Set List (defined in this profile).*** C0 Control Codes (except NUL and ISO/IEC 2022 Switching) are prohibited. Other: *None.*

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Table 14 - Multi-element rules (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.14.5 Non-graphical text strings References: 7.5.4.6	Same as Model Profile ☑	
	Maximum string length (bytes): for type SF: for type SF within type D: Format effectors and ESC: Permitted ☐ Prohibited ☐ Other C0 control codes (except NUL and ISO/IEC 2022 switching) are prohibited. Any limits on the set of acceptable character sets? Any restrictions on the use of ISO/IEC 2022 switching controls? Other:	Maximum string length (bytes): for type SF: ***254.*** for type SF within type D: ***1024.*** Format effectors and ESC: Permitted ☑ Prohibited ☐ Other C0 control codes (except NUL and ISO/IEC 2022 switching) are prohibited. Any limits on the set of acceptable character sets? ***The permitted character sets are ISO 8859-1 LHS No.1 and ISO 8859-1 RHS No.1.*** Any restrictions on the use of ISO/IEC 2022 switching controls? ***Any character set used in the metafile which is accessed by ISO/IEC 2022 switching techniques shall be in the character set list (defined in this profile).*** Other: ***None.***
T.14.6 Data record strings References: 7.5.4.7	Same as Model Profile ☑	
	Maximum string length (bytes) or state "no limit": SDR-coding techniques must be used (see annex C.2.2). Other:	Maximum string length (bytes) or state "no limit": ***32767.*** SDR-coding techniques must be used (see annex C.2.2). Other: ***None.***

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Table 15 - Delimiter elements

Element	Specifications - PPF	Specifications - Model Profile
T.15.1 BEGIN METAFILE END METAFILE [v1] References: 5.2.1 5.2.2 7.5.4.6 T.14.5	Same as Model Profile ☑ Element is: Required ☑ The *metafile identifier* shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Other:	Element is: Required ☑ The *metafile identifier* shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Other: ***None.***
T.15.2 BEGIN PICTURE BEGIN PICTURE BODY END PICTURE [v1] References: 5.2.3 5.2.4 5.2.5 7.5.4.6 T.14.5	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ The *picture identifier* shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Number of occurrences of these elements allowed in the metafile: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *picture identifier* shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. Number of occurrences of these elements allowed in the metafile: ***No limit.*** Other: ***None.***

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Table 15 - Delimiter elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.15.3 BEGIN SEGMENT END SEGMENT [v2] References: 5.2.6 5.2.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneously defined segments (both global and local) at any point in the metafile: Any limits on the number of elements or restrictions on which elements compose a segment? Is there any meaning given to the *segment identifier* parameter? (yes/no) If yes, specify. (Meaning shall have no graphical effect.) Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneously defined segments (both global and local) at any point in the metafile: ***1024.*** Any limits on the number of elements or restrictions on which elements compose a segment? ***None.*** Is there any meaning given to the *segment identifier* parameter? (yes/no) ***No.*** If yes, specify. (Meaning shall have no graphical effect). Other: ***When global segments are specified in the Metafile Descriptor, all global segment definitions shall follow all other Metafile Descriptor elements. When segments are specified in the Picture Descriptor, all such segment definitions shall follow all other Picture Descriptor elements.***
T.15.4 BEGIN FIGURE END FIGURE [v2] References: 5.2.8 5.2.9	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Limits on the number of elements or restrictions on which elements comprise a figure definition: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Limits on the number of elements or restrictions on which elements comprise a figure definition: ***Maximum number of elements = 128. No restrictions on which eligible elements may be included.*** Other: ***None.***

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Table 15 - Delimiter elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.15.5 BEGIN PROTECTION REGION END PROTECTION REGION [v3] References: 5.2.10 5.2.11	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneously defined protection regions: Maximum number of elements within each protection region: Is there any meaning to the *region index* parameter other than as a unique identifier for each protection region? (yes/no) If yes, specify. (Meaning shall have no graphical effect). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneously defined protection regions: ***32.*** Maximum number of elements within each protection region: ***128.*** Is there any meaning to the *region index* parameter other than as a unique identifier for each protection region? (yes/no) ***No.*** If yes, specify. (Meaning shall have no graphical effect). Other: ***None.***
T.15.6 BEGIN COMPOUND LINE END COMPOUND LINE [v3] References: 5.2.12 5.2.13	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Limits on the number of elements and identity of elements comprising a path definition: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Limits on the number of elements and identity of elements comprising a path definition: ***Maximum number of elements is 128. No restrictions on which eligible elements may be included.*** Other: ***None.***

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Table 15 - Delimiter elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.15.7 BEGIN COMPOUND TEXT PATH END COMPOUND TEXT PATH [v3] References: 5.2.14 5.2.15	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Limits on the number and identity of elements comprising a path definition: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Limits on the number and identity of elements comprising a path definition: ***Maximum number of elements is 128. No restrictions on which eligible elements may be included.*** Other: ***None.***
T.15.8 BEGIN TILE ARRAY END TILE ARRAY [v3] References: 5.2.16 5.2.17	Same as Model Profile ☐	
	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of tiles in path direction: 256 Maximum number of tiles in line direction: 256 Maximum number of cells/tile in path direction: 1024 Maximum number of cells/tile in line direction: 1024 Limits on pel path: None Limits on line progression: None Limits on image offset: None Other: None	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of tiles in path direction: ***16.*** Maximum number of tiles in line direction: ***16.*** Maximum number of cells/tile in path direction: ***1024.*** Maximum number of cells/tile in line direction: ***1024.*** Limits on pel path: ***None.*** Limits on line progression: ***None.*** Limits on image offset: ***None.*** Other: ***None.***

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Table 16 - Metafile descriptor elements

Element	Specifications - PPF	Specifications - Model Profile
T.16.1 METAFILE VERSION [v1] References: 5.3.1	Same as Model Profile ☑ Element is: Required ☑ Metafile versions permitted by this profile: Other:	 Element is: Required ☑ Metafile versions permitted by this profile: ***1, 2, 3.*** Other: ***None.***
T.16.2 METAFILE DESCRIPTION [v1] References: 5.3.2 7.5.2.1 7.5.2.2 7.5.4.6 T.14.1 T.14.5	Same as Model Profile ☐ Element is: Required ☑ The *description* parameter shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. The substring within the SF parameter shall be of the form: "keyword:item", where the double quotes are part of the substring. Maximum number of occurrences of this element? Unlimited Profile identification (use keyword, "ProfileId:"): "ProfileId: APV" Profile edition (use keyword, "ProfileEd:"): If the profile edition is not given, then the edition defaults to 1. "ProfileEd: 1"	 Element is: Required ☑ The *description* parameter shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. The substring within the SF parameter shall be of the form: "keyword:item", where the double quotes are part of the substring. Maximum number of occurrences of this element? ***Unlimited.*** Profile identification (use keyword, "ProfileId:"): ***"ProfileId:Model-Profile".*** Profile edition (use keyword, "ProfileEd:"): ***"ProfileEd:1".*** If the profile edition is not given, then the edition defaults to 1.

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.2 continued METAFILE DESCRIPTION	Additional information content: Metafile colour conformance class, source, and date items shall be encoded as substrings of the *description* parameter using the keywords: "ColourClass:", "Source:", and "Date:", respectively. ColourClass: Required ☑ Permitted ☐ Content: As Model Source: Required ☑ Permitted ☐ Content: As Model Date: Required ☑ Permitted ☐ Content shall be date of metafile generation. As Model Other: None	Additional information content: Metafile colour conformance class, source, and date items shall be encoded as substrings of the *description* parameter using the keywords: "ColourClass:", "Source:", and "Date:", respectively. ColourClass: Required ☑ Permitted ☐ Content: ***(One of: colour, greyscale, or monochrome.)*** Source? Required ☑ Permitted ☐ Content: ***(Vendor, product, and version).*** Date? Required ☑ Permitted ☐ Content shall be date of metafile generation. ***The form and content shall be in accordance with ISO 8601:1988.*** Other: *None.*
T.16.3 VDC TYPE [v1] References: 5.3.3	Same as Model Profile ☐	
	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? Other:	Element is: Required ☑ Permitted ☐ Note–expected to be 'Permitted' in next Edition Any restrictions on the parameter value? *None.* Other: *None.*
T.16.4 INTEGER PRECISION [v1] References: 5.3.4	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.5 REAL PRECISION [v1] References: 5.3.5	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
T.16.6 INDEX PRECISION [v1] References: 5.3.6	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
T.16.7 COLOUR PRECISION [v1] References: 5.3.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.8 COLOUR INDEX PRECISION [v1] References: 5.3.8	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
T.16.9 MAXIMUM COLOUR INDEX [v1] References: 5.3.9	Same as Model Profile ☐	
	Element is: Required ☐ Permitted ☑ Prohibited ☐ Is this element required to be a least upper bound? (yes/no) Any restrictions on the parameter values? Other: None 0-1 monochrome 0-63 greyscale 0-4095 colour	Element is: Required ☐ Permitted ☑ Prohibited ☐ Is this element required to be a least upper bound? (yes/no) *No.* Any restrictions on the parameter values? *0-1 for monochrome metafiles.* *0-63 for greyscale metafiles.* *0-255 for colour metafiles.* Other: *None.*
T.16.10 COLOUR VALUE EXTENT [v1] References: 5.3.10	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? *None.* Other: *None.*

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.11 METAFILE ELEMENT LIST [v1] References: 5.3.11	Same as Model Profile ☑ Element is: Required ☑ Other:	 Element is: Required ☑ Other: *None.*
T.16.12 METAFILE DEFAULTS REPLACEMENT [v1] References: 5.3.12	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Is each occurrence of the MDR restricted to defining just one default? (yes/no) Additional restrictions may be specified in parts 2, 3, and 4 of ISO/IEC 8632. NOTE — Profile specifications regarding use of MDR shall be consistent with other profile specifications. For example, if a profile restricts metafiles to a single picture, then it makes little sense for the profile to require the MDR element in metafiles. Other:	 Element is: Required ☐ Permitted ☑ Prohibited ☐ Is each occurrence of the MDR restricted to defining just one default? (yes/no) *No.* Additional restrictions may be specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.13 FONT LIST [v1] References: 5.3.13 annex H	Same as Model Profile ☐ Element is: Required ☐ Permitted ☑ Prohibited ☐ This element is required for all metafiles containing graphical text. Maximum number of fonts in the list: 64 All font indexes referenced in the metafile, including the default (nominally index 1) shall be defined in the FONT LIST element, with font name construction consistent with the rules of ISO/IEC 9541. List of permitted fonts is as the Model Profile plus: AvantGarde-Book AvantGarde-BookOblique AvantGarde-Demi AvantGarde-DemiOblique Bookman-Demi Bookman-DemiItalic Bookman-Light Bookman-LightItalic Helvetica-Narrow Helvetica-Narrow-Bold Helvetica-Narrow-BoldOblique Helvetica-Narrow-Oblique NewCenturySchlbk-Bold NewCenturySchlbk-BoldItalic NewCenturySchlbk-Italic NewCenturySchlbk-Roman Palatino-Bold Palatino-BoldItalic Palatino-Italic Palatino-Roman ZapfChancery-MediumItalic ZapfDingbats NOTE — the Avant-Garde, Bookman, NewCenturySchlbk and Zapf font names are copyrighted by International Typeface Corporation. Palatino is copyrighted by Linotype AG. The association of character code to glyph for the above fonts which shall be used for each of the fonts and the metrics of the named fonts are contained in annex A to this ISP.	Element is: Required ☐ Permitted ☑ Prohibited ☐ This element is required for all metafiles containing graphical text. Maximum number of fonts in the list: *64.* All font indexes referenced in the metafile, including the default (nominally index 1) shall be defined in the FONT LIST element, with font name construction consistent with the rules of ISO/IEC 9541. List of permitted fonts: ***Times-Roman*** ***Times-Bold*** ***Times-Italic*** ***Times-BoldItalic*** ***Helvetica*** ***Helvetica-Bold*** ***Helvetica-Oblique*** ***Helvetica-BoldOblique*** ***Courier*** ***Courier-Bold*** ***Courier-Oblique*** ***Courier-BoldOblique*** ***Symbol*** NOTE — Theses font names are trademarked and some are proprietary and copyrighted. Times and Helvetica are registered trademarks of Allied Corporation, the owner of the copyright on the fonts of those names. Metric equivalents of the named fonts may be substituted by interpreters. Times is a serif font. Helvetica is a sans-serif font. Courier is a monospaced, serif font. The association of character code to glyph which shall be used for each of the fonts and the metrics of the named fonts are contained in annex H. Other: *None.*

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.14 CHARACTER SET LIST [v1] References: 5.3.14	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ This element is required for all metafiles containing graphical text. Maximum limit for the number of character sets in the character set list: Character sets shall be selected from the ISO Registry of Character Sets. This list may be extended by adding profile-defined character sets. List character sets: If any of these character sets is of type "complete code", specify the content of the complete code and its associated sequence tail: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ This element is required for all metafiles containing graphical text. Maximum limit for the number of character sets in the character set list: ***4.*** Character sets shall be selected from the ISO Registry of Character Sets. This list may be extended by adding profile-defined character sets. List character sets: ***"94-character G-set", 4/2 (ISO 8859-1 LH);*** ***"96-character G-set", 4/1 (ISO 8859-1 RH);*** ***"94-character G-set", 2/10 3/10 (Symbol LH);*** ***"94-character G-set", 2/6 3/10 (Symbol RH).*** If any of these character sets is of type "complete code", specify the content of the complete code and its associated sequence tail: ***Not applicable.*** Other: ***None.***
T.16.15 CHARACTER CODING ANNOUNCER [v1] References: 5.3.15	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? ***Values shall be 'basic 7-bit' and 'basic 8-bit'.*** Other: ***None.***

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.16 NAME PRECISION [v2] References: 5.3.16	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter value of this element is/en coding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter value of this element is/en coding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
T.16.17 MAXIMUM VDC EXTENT [v2] References: 5.3.17	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? *None.* Other: *None.*
T.16.18 SEGMENT PRIORITY EXTENT [v2] References: 5.3.18	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? *None.* Other: *None.*
T.16.19 COLOUR MODEL [v3] References: 5.3.19	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of colour models? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of colour models? *None.* Other: *None.*

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.20 COLOUR CALIBRATION [v3] References: 5.3.20	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Calibration selection values permitted in accordance with the permitted model(s): If CYMK is permitted, minimum number of grid locations: Any restrictions on the number of colour lookup table entries, n? Any restrictions on the number of grid locations, m?: If CYMK is permitted, algorithms for interpolation between grid locations? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Calibration selection values permitted in accordance with the permitted model(s): ***Values 1..6, 9.*** If CYMK is permitted, minimum number of grid locations: ***3.*** Any restrictions on the number of colour lookup table entries, n? ***None.*** Any restrictions on the number of grid locations, m? ***None.*** If CYMK is permitted, algorithms for interpolation between grid locations? ***None.*** Other: ***None.***
T.16.21 FONT PROPERTIES [v3] References: 5.3.21	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? ***All defined index and enumerated values of all parameters shall be permitted.*** Other: ***None.***

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Table 16 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.16.22 GLYPH MAPPING [v3] References: 5.3.22	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Subset of AFII registered glyphs which may be referenced: Maximum number of glyphs which may be defined: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Subset of AFII registered glyphs which may be referenced: ***None.*** Maximum number of glyphs which may be defined: ***8192.*** Other: ***None.***
T.16.23 SYMBOL LIBRARY LIST [v3] References: 5.3.23	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Libraries which may be accessed and their encoding rules: Maximum number of libraries which may be accessed: Other:	Element is: Required ☐ Permitted ☐ Prohibited ☑ Libraries which may be accessed and their encoding rules: Maximum number of libraries which may be accessed: Other: ***NOTE — There are currently no registered symbol libraries.***

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Table 17 - Picture descriptor elements

Element	Specifications - PPF	Specifications - Model Profile
T.17.1 SCALING MODE [v1] References: 5.4.1	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? ***If SCALING MODE is metric then the 'metric scale factor' shall be positive.*** Other: ***None.***
T.17.2 COLOUR SELECTION MODE [v1][v2] References: 5.4.2	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Any restrictions on the parameter values? Other:	Element is Required ☐ Permitted ☑ Any restrictions on the parameter values? ***None.*** Other: ***None.***
T.17.3 LINE WIDTH SPECIFICATION MODE [v1][v2] References: 5.4.3	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Any restrictions on the parameter values? Other:	Element is Required ☐ Permitted ☑ Any restrictions on the parameter values? ***None.*** Other: ***None.***

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Table 17 - Picture descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.17.4 MARKER SIZE SPECIFICATION MODE [v1][v2] References: 5.4.4	Same as Model Profile ☑ Element is Required ☐ Permitted ☐ Any restrictions on the parameter values? Other:	Element is Required ☐ Permitted ☑ Any restrictions on the parameter values? ***None.*** Other: ***None.***
T.17.5 EDGE WIDTH SPECIFICATION MODE [v1][v2] References: 5.4.5	Same as Model Profile ☑ Element is Required ☐ Permitted ☐ Any restrictions on the parameter values? Other:	Element is Required ☐ Permitted ☑ Any restrictions on the parameter values? ***None.*** Other: ***None.***
T.17.6 VDC EXTENT [v1] References: 5.4.6	Same as Model Profile ☑ Element is Required ☐ Permitted ☐ Limits on the sense and orientation of the VDC space: Is zero-area VDC extent permitted? (yes/no) If yes, specify its meaning. Other:	Element is Required ☐ Permitted ☑ Limits on the sense and orientation of the VDC space: ***None.*** Is zero-area VDC extent permitted? (yes/no) ***No.*** If yes, specify its meaning. Other: ***None.***

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Table 17 - Picture descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.17.7 BACKGROUND COLOUR [v1] References: 5.4.7 7.5.4.1 T.14.1	Same as Model Profile ☑ Element is Required ☐ Permitted ☐ The *colour value* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other:	Element is Required ☐ Permitted ☑ The *colour value* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other: ***None.***
T.17.8 DEVICE VIEWPORT [v2] References: 5.4.8	Same as Model Profile ☑ Element is Required ☐ Permitted ☐ Prohibited ☐ Interaction of this element with environmental presentation directives: Meaning of this element if the specified value is inconsistent with the presentation device: Other:	Element is Required ☐ Permitted ☐ Prohibited ☑ Interaction of this element with environmental presentation directives: Meaning of this element if the specified value is inconsistent with the presentation device: Other: ***NOTE — This element is prohibited due to its device dependence.***
T.17.9 DEVICE VIEWPORT SPECIFICATION MODE [v2] References: 5.4.9	Same as Model Profile ☑ Element is Required ☐ Permitted ☐ Prohibited ☐ Set of legal values: Other:	Element is Required ☐ Permitted ☐ Prohibited ☑ Set of legal values: Other: ***NOTE — This element is prohibited due to its device dependence.***

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Table 17 - Picture descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.17.10 DEVICE VIEWPORT MAPPING [v2] References: 5.4.10	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Set of legal values: Other:	Element is Required ☐ Permitted ☐ Prohibited ☑ Set of legal values: Other: ***NOTE — This element is prohibited due to its device dependence.***
T.17.11 LINE REPRESENTATION [v2] References: 5.4.11 7.5.2.6 7.5.4.2 T.20.1	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneous bundle definitions: Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneous bundle definitions: ***20.*** Other: ***None.***
T.17.12 MARKER REPRESENTATION [v2] References: 5.4.12 7.5.2.6 7.5.4.2 T.20.5	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneous bundle definitions: Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneous bundle definitions: ***20.*** Other: ***None.***

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Table 17 - Picture descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.17.13 TEXT REPRESENTATION [v2] References: 5.4.13 7.5.2.6 7.5.4.2 T.20.9	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneous bundle definitions: Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneous bundle definitions: ***20.*** Other: ***None.***
T.17.14 FILL REPRESENTATION [v2] References: 5.4.14 7.5.2.6 7.5.4.2 T.20.21	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneous bundle definitions: Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneous bundle definitions: ***20.*** Other: ***None.***
T.17.15 EDGE REPRESENTATION [v2] References: 5.4.15 7.5.2.6 7.5.4.2 T.20.26	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneous bundle definitions: Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneous bundle definitions: ***20.*** Other: ***None.***

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Table 17 - Picture descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.17.16 INTERIOR STYLE SPECIFICATION MODE [v3] References: 5.4.16	Same as Model Profile ☑ Element is Required ☐ Permitted ☐ Prohibited ☐ Any restriction on the parameter value? Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Any restriction on the parameter value? *None.* Other: *None.*
T.17.17 LINE AND EDGE TYPE DEFINITION [v3] References: 5.4.17	Same as Model Profile ☐ Element is Required ☐ Permitted ☐ Prohibited ☐ Any limits on the number of definitions? As Model Any limits on the number of elements in a given definition? The number of values in the dash gap list shall not exceed 16 Any restrictions on the dash cycle repeat length? None Any restrictions on complexity of definition to prevent degeneracies? None Other: None	Element is Required ☐ Permitted ☑ Prohibited ☐ Any limits on the number of definitions? ***Maximum of 32 line types shall be specified simultaneously.*** Any limits on the number of elements in a given definition? ***Number of values in the dash gap list shall not exceed 8.*** Any restrictions on the dash cycle repeat length? *None.* Any restrictions on complexity of definition to prevent degeneracies? *None.* Other: *None.*

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Table 17 - Picture descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.17.18 HATCH STYLE DEFINITION [v3] References: 5.4.18	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Limit on the number of hatch styles? Limit on the number of gaps in a given definition? Any limits on duty cycle length? Any restrictions on complexity of definition to prevent degeneracies? Any restrictions on the style indicator: Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Limit on the number of hatch styles? ***Maximum of 32 hatch styles shall be specified simultaneously.*** Limit on the number of gaps in a given definition? ***Number of entries in the gap width list shall not exceed 8.*** Any limits on duty cycle length? ***None.*** Any restrictions on complexity of definition to prevent degeneracies? ***None.*** Any restrictions on the style indicator? ***None.*** Other: ***None.***
T.17.19 GEOMETRIC PATTERN DEFINITION [v3] References: 5.4.19	Same as Model Profile ☑	
	Element is Required ☐ Permitted ☐ Prohibited ☐ Any limits on the number of geometric patterns defined? NOTE — The number of geometric patterns cannot exceed the number of segments. Any limits on the classes of primitives? Other:	Element is Required ☐ Permitted ☑ Prohibited ☐ Any limits on the number of geometric patterns defined? ***The maximum number of geometric patterns is 64.*** Any limits on the classes of primitives? ***None.*** Other: ***None.***

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Table 18 - Control Elements

Element	Specifications - PPF	Specifications - Model Profile
T.18.1 VDC INTEGER PRECISION [v1] References: 5.5.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
T.18.2 VDC REAL PRECISION [v1] References: 5.5.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required ☐ Permitted ☑ The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
T.18.3 AUXILIARY COLOUR [v1] References: 5.5.3 7.5.4.1 T.14.1 D.4.4.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *auxiliary colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *auxiliary colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other: *None.*

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Table 18 - Control Elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.18.4 TRANSPARENCY [v1] References: 5.5.4 T.14.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restriction on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restriction on the parameter value? ***None.*** Other: ***None.***
T.18.5 CLIP RECTANGLE [v1] References: 5.5.5 D.4.4.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Meaning of boundary cases for: zero-area: area greater than VDC extent: additional cases? NOTE — Because objects "inside and on the boundary are drawn", then zero-area does not have the sometimes claimed effect of hiding subsequent primitives - there will be a visible effect, a dot or a line, if the object intersects the boundary of the degenerate area. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Meaning of boundary cases for: zero-area: ***Prohibited.*** area greater than VDC extent: ***Clipping shall be done to the intersection of CLIP RECTANGLE and VDC EXTENT.*** additional cases: ***None.*** Other: ***None.***

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Table 18 - Control Elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.18.6 CLIP INDICATOR [v1] References: 5.5.6	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.18.7 LINE CLIPPING MODE [v2] References: 5.5.7 D.4.4.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.18.8 MARKER CLIPPING MODE [v2] References: 5.5.8 D.4.4.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.18.9 EDGE CLIPPING MODE [v2] References: 5.5.9 D.4.4.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***

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Table 18 - Control Elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.18.10 NEW REGION [v2] References: 5.5.10	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ This element shall be permitted only if BEGIN FIGURE is permitted. Any restrictions on the number of occurrences? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ This element shall be permitted only if BEGIN FIGURE is permitted. Any restrictions on the number of occurrences? ***None.*** Other: ***None.***
T.18.11 SAVE PRIMITIVE CONTEXT [v2] References: 5.5.11	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Maximum number of simultaneously saved contexts: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of simultaneously saved contexts: ***1024.*** Other: ***None.***
T.18.12 RESTORE PRIMITIVE CONTEXT [v2] References: 5.5.12	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ This element is permitted only if SAVE PRIMITIVE CONTEXT is permitted. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ This element is permitted only if SAVE PRIMITIVE CONTEXT is permitted. Other: ***None.***

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Table 18 - Control Elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.18.13 PROTECTION REGION INDICATOR [v3] References: 5.5.13	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ This element shall be permitted only if BEGIN PROTECTION REGION is permitted. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ This element shall be permitted only if BEGIN PROTECTION REGION is permitted. Other: ***None.***
T.18.14 GENERALIZED TEXT PATH MODE [v3] References: 5.5.14	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.18.15 MITRE LIMIT [v3] References: 5.5.15	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***

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Table 18 - Control Elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.18.16 TRANSPARENT CELL COLOUR [v3] References: 5.5.16	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *transparent cell colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *transparent cell colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter values? ***None.*** Other: ***None.***

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Table 19 - Graphical primitive elements

Element	Specifications - PPF	Specifications - Model Profile
T.19.1 POLYLINE [v1] References: 5.6.1 ~~7.5.4.3~~ T14.2 D.2.21	Same as Model Profile ☐ Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points or state "no limit": 32767 Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other: None	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points or state "no limit": *4096.* Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other: *None.*
T.19.2 DISJOINT POLYLINE [v1] References: 5.6.2 ~~7.5.4.3~~ T14.2 D.2.2.1	Same as Model Profile ☐ Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points or state "no limit": 32767 Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other: None	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points or state "no limit": *4096.* Zero-length geometric degeneracies shall be as defined in clause ~~7.5.2.3~~. T14.2 Other: *None.*
T.19.3 POLYMARKER [v1] References: 5.6.3	Same as Model Profile ☐ Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points or state "no limit": 32767 Other: None	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points or state "no limit": *4096.* Other: *None.*

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.4 TEXT [v1] References: 5.6.4 7.5.4.5	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *string* parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the 'not final' flag allowed: (yes/no) Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *string* parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the 'not final' flag allowed: (yes/no) ***Yes.*** Other: ***None.***
T.19.5 RESTRICTED TEXT [v1] References: 5.6.5 7.5.4.5 T.25.7 D.4.5.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *string* parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the 'not final' flag allowed: (yes/no) For [v1/2] metafiles, is the realization of RESTRICTED TEXT according to one of the standard or registered values for RESTRICTED TEXT TYPE? (yes/no) If yes, specify. For [v3] metafiles, RESTRICTED TEXT TYPE shall be used if this element is used. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *string* parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the 'not final' flag allowed: (yes/no) ***Yes.*** For [v1/2] metafiles, is the realization of RESTRICTED TEXT according to one of the standard or registered values for RESTRICTED TEXT TYPE? (yes/no) ***Yes.*** If yes, specify. ***Boxed-cap, also see T.25.7*** For [v3] metafiles, RESTRICTED TEXT TYPE shall be used if this element is used. Other: ***None.***

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.6 APPEND TEXT [v1] References: 5.6.6. 7.5.4.5 D.4.5.1	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ The *string* parameter shall follow the rules for graphical text, clause 7.5.4.5. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *string* parameter shall follow the rules for graphical text, clause 7.5.4.5. Other: *None.*
T.19.7 POLYGON [v1] References: 5.6.7 ~~7.5.4.4~~ T14.3 D.2.2.2	Same as Model Profile ☐ Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points: 32767 Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other: Minimum number of points is 3	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points: *4096.* Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other: *None.*
T.19.8 POLYGON SET [v1] References: 5.6.8 ~~7.5.4.4~~ T14.3 D.2.2.2	Same as Model Profile ☐ Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points: 32767 in the set Number of polygons in a set? No limit Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other: As Model	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points: *4096.* Number of polygons in a set? *No limit.* Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other: ***Each individual polygon within a set shall have at least 3 points.***

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.9 CELL ARRAY [v1] References: 5.6.9 D.4.5.3	Same as Model Profile ☐	
	Element is: Required ☐ Permitted ☑ Prohibited ☐ Limit for nx: 4096 Limit for ny: 4096 Limit for nx · ny: 16777216 Are rotated and skewed cell arrays allowed? (yes/no) No If yes, specify the graphical meaning. Other: Zero-area cell arrays are prohibited.	Element is: Required ☐ Permitted ☑ Prohibited ☐ Limit for nx: *2048.* Limit for ny: *2048.* Limit for nx · ny: *4194304.* Are rotated and skewed cell arrays allowed? (yes/no) *No.* If yes, specify the graphical meaning. Other: *Zero-area cell arrays are prohibited.*
T.19.10 GENERALIZED DRAWING PRIMITIVE [v1] References: 5.6.10	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ List all registered GDPs that are allowed: List all profile-defined GDPs that are allowed and attach complete description: NOTE — Only registered GDPs and profile-defined GDPs shall be allowed in profiles. Other:	Element is: Required ☐ Permitted ☐ Prohibited ☑ List all the registered GDPs that are allowed: List all profile-defined GDPs that are allowed and attach complete description: Other:

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.11 RECTANGLE [v1] References: 5.6.11 ~~7.5.4.4~~ T14.3 D.2.2.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~ T14.3 Other: *None.*
T.19.12 CIRCLE [v1] References: 5.6.12 ~~7.5.4.4~~ T14.3 D.2.2.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-area degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~ T14.3 Other: *None.*
T.19.13 CIRCULAR ARC 3 POINT [v1] References: 5.6.13 ~~7.5.4.3~~ T14.2 D.2.2.2 D.4.5.4	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other: *None.*

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.14 CIRCULAR ARC 3 POINT CLOSE [v1] References: 5.6.14 ~~7.5.4.4~~ T14.3 D.2.2.2 D.4.5.5	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other: *None.*
T.19.15 CIRCULAR ARC CENTRE [v1] References: 5.6.15 ~~7.5.4.3~~ T14.2 D.2.2.2 D.4.5.6	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other: *None.*
T.19.16 CIRCULAR ARC CENTRE CLOSE [v1] References: 5.6.16 ~~7.5.4.4~~ T14.3 D.2.2.2 D.4.5.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other: *None.*

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.17 ELLIPSE [v1] References: 5.6.17 ~~7.5.4.4~~ T14.3 D.2.2.2 D.4.5.9 D.4.5.10	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~ T14.3 Other: *None.*
T.19.18 ELLIPTICAL ARC [v1] References: 5.6.18 ~~7.5.4.3~~ T14.2 D.2.2.1 D.4.5.11	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3~~. T14.2 Other: *None.*
T.19.19 ELLIPTICAL ARC CLOSE [v1] References: 5.6.19 ~~7.5.4.4~~ T14.3 D.2.2.2 D.4.5.12	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-area geometric degeneracies shall be as defined in clause ~~7.5.4.4~~. T14.3 Other: *None.*

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.20 CIRCULAR ARC CENTRE REVERSED [v2] References: 5.6.20 ~~7.5.4.3~~ T14.2 D.2.2.1 D.4.5.8	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other: *None.*
T.19.21 CONNECTING EDGE [v2] References: 5.6.21 ~~7.5.4.3~~ T14.2 D.2.2.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ This element shall be permitted only if BEGIN/END FIGURE is permitted. Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ This element shall be permitted only if BEGIN/END FIGURE is permitted. Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other: *None.*
T.19.22 HYPERBOLIC ARC [v3] References: 5.6.22 ~~7.5.4.3~~ T14.2 D.2.2.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other: *None.*

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.23 PARABOLIC ARC [v3] References: 5.6.23 ~~7.5.4.3~~ T14.2 D.2.2.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.9.~~ T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.9.~~ T14.2 Other: *None.*
T.19.24 NON-UNIFORM B-SPLINE [v3] References: 5.6.24 ~~7.5.4.3~~ T14.2 D.2.2.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Set of spline orders: Maximum number of control points: Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Set of spline orders: ***cubic spline.*** Maximum number of control points: ***4096.*** Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.9.~~ T14.2 Other: *None.*
T.19.25 NON-UNIFORM RATIONAL B-SPLINE [v3] References: 5.6.25 ~~7.5.4.3~~ T14.2 D.2.2.1	Same as Model Profile ☐	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Set of spline orders: Maximum number of control points: Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Set of spline orders: ***cubic spline.*** Maximum number of control points: ***4096.*** Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.9.~~ T14.2 Other: *None.*

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.26 POLYBEZIER [v3] References: 5.6.26 ~~7.5.4.3~~ T14.2 D.2.2.1	Same as Model Profile ☐	
	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points: 32767 Any restrictions on the continuity indicator? Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum number of points: ***4096.*** Any restrictions on the continuity indicator? ***None.*** Zero-length geometric degeneracies shall be as defined in clause ~~7.5.4.3.~~ T14.2 Other: ***None.***
T.19.27 POLYSYMBOL [v3] References: 5.6.27 D.2.2.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Point list: Effect of a reference to a symbol index parameter which is not in the symbol library: Other:	Element is: Required ☐ Permitted ☐ Prohibited ☑ Point list: Effect of a reference to a symbol index parameter which is not in the symbol library. Other: ***NOTE — This element is prohibited because SYMBOL LIBRARY LIST is prohibited.***

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Table 19 - Graphical primitive elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.19.28 BITONAL TILE [v3] References: 5.6.28 D.2.2.1 D.4.5.13	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ List allowable compression types: Requirements on row padding: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ List allowable compression types: ***Values 0..6.*** Requirements on row padding: ***None.*** Other: ***CCITT compression methods (T6 and T4) should be used with 1 bit cell colour precision and indexed colour.*** ***NOTE — Work is in progress on registration of JPEG. When JPEG is registered, it may be added to the allowable compression type values in a future edition of this profile.***
T.19.29 TILE [v3] References: 5.6.29 D.2.2.1 D.4.5.13	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ List allowable compression types: Requirements on row padding: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ List allowable compression types: ***Values 0..6.*** Requirements on row padding? ***None.*** Other: ***CCITT compression methods (T6 and T4) should be used with 1 bit cell colour precision and indexed colour.*** ***NOTE — Work is in progress on registration of JPEG. When JPEG is registered, it may be added to the allowable compression type values in a future edition of this profile.***

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Table 20 - Attribute elements

Element	Specifications - PPF	Specifications - Model Profile
T.20.1 LINE BUNDLE INDEX [v1] References: 5.7.1 7.5.4.2 D.4.6.1 T.17.11	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ The *line bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *line bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. and meanings of values For [v1] metafiles, allowable ~~index~~ values *1..5.* *index* 1 2 3 4 5 *line type* 1 2 3 4 5 *line width* 1.0 1.0 1.0 1.0 1.0 *line colour* 1 1 1 1 1 For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
T.20.2 LINE TYPE [v1] References: 5.7.2 5.4.17 D.4.6.2	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Select 1 or more of the following: ☐ values 1..5; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description); For [v3] metafiles, ☐ negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Select 1 or more of the following: ☑ values 1..5; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description); For [v3] metafiles, ☑ negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.3 LINE WIDTH [v1] References: 5.7.3 D.4.6.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Is value zero allowed? (yes/no) If yes, specify its meaning. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Is value zero allowed? (yes/no) ***Yes.*** If yes, specify its meaning. ***Minimum available line width.*** Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.20.4 LINE COLOUR [v1] References: 5.7.4 7.5.4.1 T.14.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *line colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *line colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? ***None.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.5 MARKER BUNDLE INDEX [v1] References: 5.7.5 7.5.4.2 T.17.12 D.4.6.1	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ The *marker bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *marker bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. and meanings of values For [v1] metafiles, allowable ~~index~~ values *1..5*. *index* 1 2 3 4 5 *marker type* 1 2 3 4 5 *marker width* 1.0 1.0 1.0 1.0 1.0 *marker colour* 1 1 1 1 1 For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
T.20.6 MARKER TYPE [v1] References: 5.7.6 D.4.6.4	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Indicate one or more of the following restrictions: ☐ values 1-5; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Indicate one or more of the following restrictions: ☑ values 1..5; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description). Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.7 MARKER SIZE [v1] References: 5.7.7 D.4.6.5	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Is value zero allowed? (yes/no) If yes, specify its meaning. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Is value zero allowed? (yes/no) ***Yes.*** If yes, specify its meaning. ***Minimum available size.*** Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.20.8 MARKER COLOUR [v1] References: 5.7.8 7.5.4.1 T.14.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *marker colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *marker colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? ***None.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.9 TEXT BUNDLE INDEX [v1] References: 5.7.9 7.5.4.2 T.17.13 D.4.6.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *text bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *text bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. and meanings of values For [v1] metafiles, allowable index values: *1..2*. *index* 1 2 *font index* 1 1 *text precision* stroke stroke *character expansion factor* 1.0 0.7 *character spacing* 0.0 0.0 *text colour* 1 1 For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
T.20.10 TEXT FONT INDEX [v1] References: 5.7.10 7.5.4.2 T.16.13	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Every referenced index shall refer to an entry in the FONT LIST (see T.16.13). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Every referenced index shall refer to an entry in the FONT LIST (see T.16.13). Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.11 TEXT PRECISION [v1] References: 5.7.11	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.20.12 CHARACTER EXPANSION FACTOR [v1] References: 5.7.12 D.4.6.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Is value zero allowed? (yes/no) If yes, state the meaning. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Is value zero allowed? (yes/no) ***No.*** If yes, state the meaning. Any restrictions on the parameter value? ***Values shall be restricted to the range 0.1..10.0*** Other: ***None.***
T.20.13 CHARACTER SPACING [v1] References: 5.7.13 D.4.6.8	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***Values shall be restricted to the range of -1.0..5.0.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.14 TEXT COLOUR [v1] References: 5.7.14 7.5.4.1 T.14.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *text colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *text colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.20.15 CHARACTER HEIGHT [v1] References: 5.7.15 D.4.6.9	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Is zero height allowed? (yes/no) If yes, state its meaning. Any restrictions on the parameter? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Is zero height allowed: (yes/no) ***Yes.*** If yes, state its meaning: ***Minimum available height.*** Any restrictions on the parameter? ***None.*** Other: ***None.***
T.20.16 CHARACTER ORIENTATION [v1] References: 5.7.16 D.4.6.10	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the following distortion aspects? rotation? skewing? mirroring? aspect ratio? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the following distortion aspects? rotation? ***None.*** skewing? ***None.*** mirroring? ***None.*** aspect ratio? ***None.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.17 TEXT PATH [v1] References: 5.7.17 D.4.6.11	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? *None.* Other: *None.*
T.20.18 TEXT ALIGNMENT [v1] References: 5.7.18 D.4.6.12	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the horizontal and vertical alignment values? Any restrictions on the continuous horizontal and vertical alignment values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the horizontal and vertical alignment values? *None.* Any restrictions on the continuous horizontal and vertical alignment values? *None.* Other: *None.*
T.20.19 CHARACTER SET INDEX [v1] References: 5.7.19 7.5.4.2 T.16.14 T.16.22 D.4.6.13	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.20 ALTERNATE CHARACTER SET INDEX [v1] References: 5.7.20 7.5.4.2 T.16.14 T.16.22 D.4.6.13	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other: *None.*
T.20.21 FILL BUNDLE INDEX [v1] References: 5.7.21 7.5.4.2 T.17.14 D.4.6.1	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ The *fill bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *fill bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: *1..5*. *index* 1 2 3 4 5 *interior style* *hatch* *hatch* *hatch* *hatch* *hatch* *fill colour* *1* *1* *1* *1* *1* *hatch index* *1* *2* *3* *4* *5* *pattern index* *1* *1* *1* *1* *1* For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.22 INTERIOR STYLE [v1] References: 5.7.22 D.4.6.15	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ For 'hollow' interior style, line type and width of the bounding line: Any restrictions on the parameter value?: Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ For 'hollow' interior style, line type and width of the bounding line: ***Solid line type and default line width.*** Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.20.23 FILL COLOUR [v1] References: 5.7.23 7.5.4.1 T.14.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *fill colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *fill colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? ***None.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.24 HATCH INDEX [v1] References: 5.4.18 5.7.24 5.7.4.2 D.4.6.16	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Select 1 or more of the following: ☐ values 1..6; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description); For [v3] metafiles, ☐ negative values assigned by the HATCH STYLE DEFINITION element. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Select 1 or more of the following: ☑ values 1..6; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description); For [v3] metafiles, ☑ negative values assigned by the HATCH STYLE DEFINITION element. Other: *None.*
T.20.25 PATTERN INDEX [v1] References: 5.7.25 7.5.4.2	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ The *pattern index* parameter shall follow the rules for indexes, clause 7.5.4.2. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *pattern index* parameter shall follow the rules for indexes, clause 7.5.4.2. Any restrictions on the parameter value? *None.* Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.26 EDGE BUNDLE INDEX [v1] References: 5.7.26 7.5.4.2 T.17.15 D.4.6.1	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ The *edge bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *edge bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. and meanings of values For [v1] metafiles, allowable ~~index~~ values: *1..5.* *index* 1 2 3 4 5 *edge type* 1 2 3 4 5 *edge width* 1.0 1.0 1.0 1.0 1.0 *edge colour* 1 1 1 1 1 For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
T.20.27 EDGE TYPE [v1] References: 5.4.17 5.7.27 D.4.6.17	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Select 1 or more of the following: ☐ values 1..5; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description); For [v3] metafiles, ☐ negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Select 1 or more of the following: ☑ values 1..5; ☐ subset of registered values (attach list); ☐ profile-defined values (attach complete description); For [v3] metafiles, ☑ negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.28 EDGE WIDTH [v1] References: 5.7.28 D.4.6.18	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Is value zero allowed? (yes/no) If yes, specify its meaning. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Is value zero allowed? (yes/no) ***Yes.*** If yes, specify its meaning. ***Minimum available edge width.*** Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.20.29 EDGE COLOUR [v1] References: 5.7.29 7.5.4.1 T.14.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *edge colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ The *edge colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? ***None.*** Other: ***None.***
T.20.30 EDGE VISIBILITY [v1] References: 5.7.30	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? ***None.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.31 FILL REFERENCE POINT [v1] References: 5.7.31	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	 Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? *None.* Other: *None.*
T.20.32 PATTERN TABLE [v1] References: 5.7.32	Same as Model Profile ☐ Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum size for nx: 64 Allowable values for nx: 8, 16, 32 or 64 Maximum size for ny: 64 Allowable values for ny: 8, 16, 32 or 64 Any restrictions on the number of pattern definitions? 1024 Any restrictions on allowable combinations of nx and ny? None Any restrictions on the number of colours? None Other: None	 Element is: Required ☐ Permitted ☑ Prohibited ☐ Maximum size for nx: *32.* Allowable values for nx: *8, 16, or 32.* Maximum size for ny: *32.* Allowable values for ny: *8, 16, or 32.* Any restrictions on the number of pattern definitions? *64.* Any restrictions on allowable combinations of nx and ny? *None.* Any restrictions on the number of colours? *None.* Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.33 PATTERN SIZE [v1] References: 5.7.33 D.4.6.19	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Must pattern vertors be parallel to coordinate axes? (yes/no) If no, state the meaning of skewed or non-aligned patterns. Other: NOTE — The description of the layout order of pattern cells in the PATTERN SIZE element (5.7.33) contains an error. The error is corrected by a defect report.	Element is: Required ☐ Permitted ☑ Prohibited ☐ Must pattern vertors be parallel to coordinate axes? (yes/no) Yes If no, state the meaning of skewed or non-aligned patterns. Other:
T.20.34 COLOUR TABLE [v1] References: 5.7.34 7.5.4.1 T.14.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any limits on the length of colour list? Any restrictions on the index values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any limits on the length of colour list? ***Monochrome: 2, Greyscale: 64, Colour: 256.*** Any restrictions on the index values? ***Index values shall not exceed the maximum colour index.*** Other: ***None.***
T.20.35 ASPECT SOURCE FLAGS [v1] References: 5.7.35 D.4.6.20	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Are all ASF values to be the same: for the metafile? (yes/no) within each class (line, marker, text, fill, edge) of primitive? (yes/no) Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Are all ASF values to be the same: for the metafile? (yes/no) ***No.*** within each class (line, marker, text, fill, edge) of primitive? (yes/no) ***Yes.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.36 PICK IDENTIFIER [v2] References: 5.7.36	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? *None.* Other: *None.*
T.20.37 LINE CAP [v3] References: 5.7.37 7.5.7.5 T.25.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values for the line cap indicator? (choose 1 or both) ☐ values 1..5; ☐ subset of registered values (attach list). Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) ☐ values 1..3; ☐ subset of registered values (attach list). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values for the line cap indicator? (choose 1 or both) ☑ values 1..5; ☐ subset of registered values (attach list). Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) ☑ values 1..3; ☐ subset of registered values (attach list). Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.38 LINE JOIN [v3] References: 5.7.38 7.5.7.5 T.25.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☐ values 1...4; ☐ subset of registered values (attach list). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☑ values 1..4; ☐ subset of registered values (attach list). Other: *None.*
T.20.39 LINE TYPE CONTINUATION [v3] References: 5.7.39 7.5.7.5 T.25.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values? *1..4.* Other: *None.*
T.20.40 LINE TYPE INITIAL OFFSET [v3] References: 5.7.40	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? *None.* Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.41 TEXT SCORE TYPE [v3] References: 5.7.41	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☐ Values 1..4; ☐ Subset of registered values (attach list). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☑ Values 1..4; ☐ Subset of registered values (attach list). Other: ***None.***
T.20.42 RESTRICTED TEXT TYPE [v3] References: 5.7.42 7.5.7.5 T.25.7	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☐ Values 1..6; ☐ Subset of registered values (attach list). Algorithms for achieving restriction type? (attach) Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☑ Values 1..6; ☐ Subset of registered values (attach list). Algorithms for achieving restriction type? (attach) ***Not specified.*** Other: ***None.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.43 INTERPOLATED INTERIOR [v3] References: 5.7.43	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any limits on the number of stages? Any restrictions on the set of values? (choose 1 or both) ☐ Values 1..3; ☐ Subset of registered values (attach list). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any limits on the number of stages? ***Maximum number of stages is 8.*** Any restrictions on the set of values? (choose 1 or both) ☑ Values 1..3; ☐ Subset of registered values (attach list). Other: *None.*
T.20.44 EDGE CAP [v3] References: 5.7.44 7.5.7.5 T.25.7	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values for the edge cap indicator? (choose 1 or both) ☐ values 1..5; ☐ subset of registered values (attach list). Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) ☐ values 1..3; ☐ subset of registered values (attach list). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values for the edge cap indicator? (choose 1 or both) ☑ values 1..5; ☐ subset of registered values (attach list). Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) ☑ values 1..3; ☐ subset of registered values (attach list). Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.45 EDGE JOIN [v3] References: 5.7.45 7.5.7.5 T.25.7	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☐ values 1...4; ☐ subset of registered values (attach list). Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values? (choose 1 or both) ☑ values 1..4; ☐ subset of registered values (attach list). Other: *None.*
T.20.46 EDGE TYPE CONTINUATION [v3] References: 5.7.46 7.5.7.5 T.25.7	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the set of values? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the set of values? *1..4.* Other: *None.*
T.20.47 EDGE TYPE INITIAL OFFSET [v3] References: 5.7.47	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter value? *None.* Other: *None.*

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.48 SYMBOL LIBRARY INDEX [v3] References: 5.7.48 7.5.4.2 T.16.23	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Every referenced index shall refer to an entry in the SYMBOL LIBRARY LIST (see T.16.23). Other:	Element is: Required ☐ Permitted ☐ Prohibited ☑ Every referenced index shall refer to an entry in the SYMBOL LIBRARY LIST (see T.16.23). Other: ***This element is prohibited because SYMBOL LIBRARY LIST is prohibited.***
T.20.49 SYMBOL COLOUR [v3] References: 5.7.49 7.5.4.1 T.14.1 T.16.23 D.4.6.21	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ The *symbol colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☐ Prohibited ☑ The *symbol colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other: ***This element is prohibited because SYMBOL LIBRARY LIST is prohibited.***
T.20.50 SYMBOL SIZE [v3] References: 5.7.50 T.16.23	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Is value zero allowed: (yes/no) ? If yes, specify its meaning. Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☐ Prohibited ☑ Is value zero allowed: (yes/no) ? If yes, specify its meaning. Any restrictions on the parameter value? Other: ***This element is prohibited because SYMBOL LIBRARY LIST is prohibited.***

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Table 20 - Attribute elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.20.51 SYMBOL ORIENTATION [v3] References: 5.7.51 T.16.23 D.4.6	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on rotation? Any restrictions on skewing? Any restrictions on mirroring? Any restrictions on distortion of aspect ratio? Other:	Element is: Required ☐ Permitted ☐ Prohibited ☑ Any restrictions on rotation? Any restrictions on skewing? Any restrictions on mirroring? Any restrictions on distortion of aspect ratio? Other: ***This element is prohibited because SYMBOL LIBRARY LIST is prohibited.***

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Table 21 - Escape elements

Element	Specifications - PPF	Specifications - Model Profile
T.21.1 ESCAPE [v1] References: 5.8.1	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ List all registered ESCAPEs that are allowed: List all profile-defined ESCAPEs that are allowed and attach complete description: Other: NOTE — Only registered ESCAPEs and profile-defined ESCAPEs shall be allowed in profiles.	Element: Require ☐ Permitted ☑ Prohibited ☐ List all registered ESCAPEs that are allowed: ***ESCAPE 22, Transparent Cell Colour [v1/v2] metafiles only*** List all profile-defined ESCAPEs that are allowed and attach complete description: ***None.*** Other: ***None***

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Table 22 - External elements

Element	Specifications - PPF	Specifications - Model Profile
T.22.1 MESSAGE [v1] References: 5.9.1	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Values of the *action required flag* parameter: 'action' Permitted ☐ Prohibited ☐ (if permitted, specify the messages and actions taken) 'no action' Permitted ☐ Prohibited ☐ Any restrictions on the length of the message string, other than those for type SF parameter? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Values of the *action required flag* parameter: 'action' Permitted ☐ Prohibited ☑ (if permitted, specify the messages and actions taken) 'no action' Permitted ☑ Prohibited ☐ Any restrictions on the length of the message string, other than those for SF parameter? ***None.*** Other: ***None.***
T.22.2 APPLICATION DATA [v1] References: 5.9.2	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ The use of this element shall not be restricted. Attach a syntactic and semantic description of all application data elements associated with this profile. Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ The use of this element shall not be restricted. Attach a syntactic and semantic description of all application data elements associated with this profile. Other: ***None***

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Table 23 - Segment elements

Element	Specifications - PPF	Specifications - Model Profile
T.23.1 COPY SEGMENT [v2] References: 5.10.1 D.4.9.2	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Every segment identifier shall refer to a defined segment. Any limits on the segment transformation application value? Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Every segment identifier shall refer to a defined segment. Any limits on the segment transformation application value? ***None.*** Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? ***Non-singular.*** Other: ***None.***
T.23.2 INHERITANCE FILTER [v2] References: 5.10.2	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Any limits on the filter selection list? Any limits on the selection setting? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Any limits on the filter selection list? ***None.*** An limits on the selection setting? ***None.*** Other: ***None.***
T.23.3 CLIP INHERITANCE [v2] References: 5.10.3 D.4.9.2	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Any limits on the parameter? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Any limits on the parameter? ***None.*** Other: ***None.***

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Table 23 - Segment elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.23.4 SEGMENT TRANS-FORMATION [v2] References: 5.10.4	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? ***Non-singular.*** Other: ***None.***
T.23.5 SEGMENT HIGHLIGHTING [v2] References: 5.10.5	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? ***None.*** Other: ***None.***
T.23.6 SEGMENT DISPLAY PRIORITY [v2] References: 5.10.6	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? ***None.*** Other: ***None.***

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Table 23 - Segment elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.23.7 SEGMENT PICK PRIORITY [v2] References: 5.10.7	Same as Model Profile ☑	
	Element: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter values? Other:	Element: Required ☐ Permitted ☑ Prohibited ☐ Any restrictions on the parameter values? *None.* Other: *None.*

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Table 24 - Generator implementation requirements

Functionality	**Specifications - PPF**	**Specifications - Model Profile**
T.24.1 Colour requirements References: 7.5.4.1 7.5.6.2.2	Same as Model Profile ☑	
	Colour mapping is: Permitted ☐ Prohibited ☐ Reduction of the number of colours? Definition of mapping algorithms, metrics, and colour space? For [v1/2] metafiles, implicit colour calibration specifications? Other:	Colour mapping is: Permitted ☑ Prohibited ☐ Reduction of the number of colours? ***Not specified.*** ***NOTE — If mapping of application colours to metafile colour specifications is required, it is recommended that colour distance in the mapping be computed by the Euclidean metric in CIEXYZ space.*** Definition of mapping algorithms, metrics, and colour space? ***No specific colour mapping techniques or selection of metafile colour sets are defined.*** For [v1/2] metafiles, implicit colour calibration specifications? ***No specifications are defined.*** Other: *None.*
T.24.2 Geometric accuracy and latitude References: 7.5.6.2.1	Same as Model Profile ☑	
	Accuracy and latitude for mapping application graphics to CGM graphical primitive elements:	Accuracy and latitude for mapping application graphics to CGM graphical primitive elements: Accuracy and latitude for mapping application graphics to CGM graphical primitive elements: ***Generators shall produce a metafile whose graphical primitive elements match the application graphical primitives accurately to within ±0.1% of relative position within the VDC Extent box or ±½ pixel of the intended size, whichever is greater. Generators shall produce geometric size aspects of the primitives (e.g., text size, line width, and edge width) to within 1% of the intended size or ±½ pixel of the intended size, whichever is greater.*** ***This requirement shall apply to all graphical primitive elements, unless superseded by specific element requirements in this clause.***

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Table 24 - Generator implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.24.3 Text accuracy and latitude References: 7.5.6.2.3	Same as Model Profile ☑	
	Is text accuracy and latitude addressed? (yes/no) If yes, specify.	Is text accuracy and latitude addressed? (yes/no) ***Yes.*** If yes, specify. ***Metafile text specifications shall match the text of the application picture to within ±1% of relative to the intended size or ±½ pixel of the intended size, whichever is greater, for the placement and overall extent of each text string.***
T.24.4 Font substitution References: 7.5.6.2.4 annex H annex A of this ISP	Same as Model Profile ☐	
	Font substitution is: Permitted ☑ Prohibited ☐ Similarity of font visual characteristics? as Model Font metrics? Note — annex H of ISO/IEC 8632 Am. 1 and annex A of this ISP. Individual glyph metrics? Other: None	Font substitution is: Permitted ☑ Prohibited ☐ Similarity of font visual characteristics? ***Substituted fonts shall have similar visual characteristics (e.g., posture, weight, proportionate width).*** Font metrics? ***Specified in annex H.*** Individual glyph metrics? ***Specified in annex H.*** Other: *None.*
T.24.5 Preservation of primitives References: 7.5.6.3	Same as Model Profile ☑	
	Is preservation of graphical primitive elements addressed? (yes/no) If yes, specify allowable substitutions.	Is preservation of graphical primitive elements addressed? (yes/no) *No.* If yes, specify allowable substitutions.

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Table 24 - Generator implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.24.6 Semantic latitude References: 7.5.6.4	Same as Model Profile ☑	
	Drawing priority and mode:	Drawing priority and mode: ***Priority shall correspond to the metafile order (i.e., primitives occurring later in the file shall overlay primitives occurring earliest in the file). Mode shall be "replacement" mode.***
	Clipping:	Clipping: ***Clipping shall be to the intersection of the clip rectangle, the VDC EXTENT, the device viewport, and the device view surface limits.***
	Edge centreing:	Edge centreing: ***Edges shall be centred on the ideal mathematically-defined edge of the area.***
	Meaning of predefined line types and edge types:	Meaning of predefined line types and edge types: ***The exact on-off definitions for the predefined line types and edge types are not specified.***
	Meaning of predefined hatch styles:	Meaning of predefined hatch styles: ***The inter-line spacing is not specified. Use the latitudes of annex D.4.6.16 for the angular directions.***
	Other:	Other: *None.*
T.24.7 Error processing References: 7.5.6.5	Same as Model Profile ☑	
	Is error processing addressed? (yes/no) If yes, specify the action taken. Classification of error severity? Requirements for error recovery? Requirements for error reporting? Additional areas?	Is error processing addressed? (yes/no) *No.* If yes, specify the action taken. Classification of error severity? Requirements for error recovery? Requirements for error reporting? Additional areas?
	Other:	Other: *None.*

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Table 24 - Generator implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.24.8	Same as Model Profile ☑	
Reporting References: 7.5.6.6	Is reporting required? (yes/no) If yes, specify the action taken. Method and format of the reporting? Requirement to report substitution, error, fallback behaviour, mappings, or other behaviors? Additional areas? Other:	Is reporting required? (yes/no) *No.* If yes, specify the action taken. Method and format of the reporting? Requirement to report substitution, error, fallback behaviour, mappings, or other behaviors? Additional areas? Other: *None.*
T.24.9	Same as Model Profile ☑	
Degeneracies References: 7.5.6.7 7.5.4.4 D.2 D.4	Is the generation of degenerate primitives addressed? (yes/no) If yes, attach specifications. Other:	Is the generation of degenerate primitives addressed? (yes/no) *No.* ***The generation of degenerate primitives is not restricted.*** If yes, attach specifications. Other: *None.*

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Table 25 - Interpreter implementation requirements

Functionality	Specifications - PPF	Specifications - Model Profile
T.25.1 Number of pictures References: 7.5.7.2 T.13.2	Same as Model Profile ☑	
	If 0 pictures are permitted (see T.13.2), describe the interpreter behaviour:	If 0 pictures are permitted (see T.13.2), describe the interpreter behaviour: ***Prohibited by T.13.2.***
T.25.2 Empty pictures References: 7.5.7.3 T.13.3	Same as Model Profile ☑	
	If permitted (see T.13.3), interpreter behavior:	If permitted (see T.13.3), interpreter behavior: ***The graphical effect shall be one picture in the background colour.***
T.25.3 Colour requirements References: 7.5.4.1 7.5.7.4.2 7.5.4.5	Same as Model Profile ☑	
	Interpreters shall be classified as either monochrome, greyscale, or colour interpreters (depending on the colour capability of the interpreter), and shall meet the criteria in attachment 25.**4 3** Conversions between different colour models shall be according to the conversions in annex G. Mapping of metafile colour to device components? For [v1/2] metafiles, implicit colour calibration specifications? Other:	Interpreters shall be classified as either monochrome, greyscale, or colour interpreters (depending on the colour capability of the interpreter), and shall meet the criteria in attachment 25.**4 3** Conversions between different colour models shall be according to the conversions in annex G. Mapping of metafile colour to device components? ***If mapping (to fewer colour, or greyscale, or monochrome) is required for RGB metafiles, the recommendations of annex D.3.2 shall be used.*** For [v1/2] metafiles, implicit colour calibration specifications? ***No specifications are defined.*** Other: ***None.***

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Table 25 - Interpreter implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.25.4 Geometric accuracy and latitude References: 7.5.7.4.1	Same as Model Profile ☑	
	Accuracy and latitude for placement and realization of geometric aspects when geometric primitive elements are rendered.	Accuracy and latitude for placement and realization of geometric aspects when geometric primitive elements are rendered. ***Interpreters shall render graphical primitive elements accurately to within ± 0.1% of relative position within the VDC Extent box or ±½ of the pixel resolution of the output device, whichever is greater. Interpreters shall render the geometric size aspect of primitives (e.g., text size, line width, and edge width) to within 1% of the intended size or ±½ pixel of resolution of the output device, whichever is greater.*** ***This requirement shall apply to all graphical primitive elements, unless superseded by specific element requirements in this clause.***
T.25.5 Text rendering References: 7.5.7.4.3 T.25.3	Same as Model Profile ☑	
	Is text accuracy and latitude addressed? (yes/no) If yes, specify.	Is text accuracy and latitude addressed? (yes/no) ***Yes.*** If yes, specify. ***Interpreter-rendered text shall match the text specification of the metafile to within 1% relative to the intended size or ±½ pixel of resolution of the output device, whichever is greater, for the placement and overall extent of each text string.***
	Is precision of text rendering is addressed? (yes/no) If yes, specify interpreter action.	Is precision of text rendering is addressed? (yes/no) ***Yes.*** If yes, specify interpreter action. ***Interpreters shall render text using 'stroke' precision, regardless of the actual value of the TEXT PRECISION of the metafile.***

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Table 25 - Interpreter implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.25.6 Font substitution References: T.16.13 7.5.7.4.4 annex H	Same as Model Profile ☑	
	Font substitution is: Permitted ☐ Prohibited ☐ If prohibited, use the font as specified in the FONT LIST. If permitted, include a reference set of font and glyph metrics which correspond to the canonical instances of the substitutable font. Are substitution methods, latitudes, and constraints addressed? (yes/no) If yes, specify: Similarity of font visual characteristics? Font metrics? Individual glyph metrics? Additional areas? Other:	Font substitution is: Permitted ☑ Prohibited ☐ If prohibited, use the font as specified in the FONT LIST. If permitted, include a reference set of font and glyph metrics which correspond to the canonical instances of the substitutable font. ***See the FONT LIST element and annex H.*** Are substitution methods, latitudes, and constraints addressed? (yes/no) ***Yes.*** If yes, specify: Similarity of font visual characteristics? ***Substituted fonts shall have similar visual characteristics to the fonts specified in the metafile*** Font metrics? ***Substituted fonts shall have similar metrics to the fonts specified in the metafile.*** Individual glyph metrics? ***As specified in annex H.*** Additional areas? ***None.*** Other: ***None.***
T.25.7 Semantic latitude References: 7.5.7.5 T.20.37 T.20.38 T.20.39 T.20.42 T.20.44 T.20.45 T.20.46	Same as Model Profile ☑	
	Drawing priority and mode: View surface clearing at picture start: Clipping:	Drawing priority and mode: ***Priority shall correspond to the metafile order (i.e., primitives occurring later in the file shall overlay primitives occurring earliest in the file. Mode shall be "replacement" mode.*** View surface clearing at picture start: ***Surface will be cleared upon the occurrence of BEGIN PICTURE BODY.*** Clipping: ***When CLIP INDICATOR is 'off', clipping shall be to the intersection of the device viewport and the device view surface limits. When CLIP INDICATOR is 'on', clipping shall be to the intersection of the clip rectangle, the VDC EXTENT, the device viewport, and the device view surface limits.***

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Table 25 - Interpreter implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.25.7 continued Semantic latitude	Edge centreing:	Edge centering: ***Edges shall be centred on the ideal mathematically-defined edge of the area.***
	Meaning of predefined line types and edge types:	Meaning of predefined line types and edge types: ***The exact on-off definitions for the predefined line types and edge types are not specified.***
	Meaning of predefined hatch styles:	Meaning of predefined hatch styles: ***The inter-line spacing is not specified. Use the latitudes of annex D.4.6.16 for the angular directions.***
	For [v1/v2] metafiles, text restriction method for RESTRICTED TEXT elements, chosen from the set of standard and registered styles of the RESTRICTED TEXT TYPE element:	For [v1/v2] metafiles, text restriction method for RESTRICTED TEXT elements, chosen from the set of standard and registered styles of the RESTRICTED TEXT TYPE element: ***Value 2.***
	For [v1/2] metafiles, interpreter treatment of the 2 aspects of line cap shall be either: ☐ in the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element. Values = ? ☐ in the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element.	For [v1/2] metafiles, interpreter treatment of the 2 aspects of line cap shall be either: ☐ in the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element. Values = ? ☑ in the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element.
	For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge cap shall be either: ☐ in the style of one specific parameter value pair, from the set of standard and registered values (excluding values 1) of the EDGE CAP element. Values = ? ☐ in the style of any parameter value pair, from the set of standard and registered values (excluding values 1) of the EDGE CAP element.	For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge cap shall be either: ☐ in the style of one specific parameter value pair, from the set of standard and registered values (excluding values 1) of the EDGE CAP element. Values = ? ☑ in the style of any parameter value pair, from the set of standard and registered values (excluding values 1) of the EDGE CAP element.
	For [v1/2] metafiles, interpreter treatment of line join shall be either: ☐ in the style of one specific parameter value, from the set of	For [v1/2] metafiles, interpreter treatment of line join shall be either: ☐ in the style of one specific parameter value, from the set of

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Table 25 - Interpreter implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.25.7 continued Semantic latitude	standard and registered values (excluding value 1) of the LINE JOIN element. Value = ? ☐ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the LINE JOIN element. For [v1/2] metafiles, interpreter treatment of edge join shall be either: ☐ in the style of one specific parameter value, from the set of standard and registered values (excluding value 1) of the EDGE JOIN element. Value = ? ☐ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the EDGE JOIN element. For [v1/2] metafiles, interpreter treatment of line type continuation shall be either: ☐ in the style of one specific parameter value, from the set of standard and registered values (excluding value 1) of the LINE TYPE CONTINUATION element. Value = ? ☐ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the LINE TYPE CONTINUATION element. For [v1/2] metafiles, interpreter treatment of edge type continuation shall be either: ☐ in the style of one specific parameter value, from the set of standard and registered values (excluding value 1) of the EDGE TYPE CONTINUATION element. Value = ? ☐ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the EDGE TYPE CONTINUATION element. Other:	standard and registered values (excluding value 1) of the LINE JOIN element. Value = ? ☑ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the LINE JOIN element. For [v1/2] metafiles, interpreter treatment of edge join shall be either: ☐ in the style of one specific parameter value, from the set of standard and registered values (excluding value 1) of the EDGE JOIN element. Value = ? ☑ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the EDGE JOIN element. For [v1/2] metafiles, interpreter treatment of line type continuation shall be either: ☐ in the style of one specific parameter value, from the set of standard and registered values (excluding value 1) of the LINE TYPE CONTINUATION element. Value = ? ☑ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the LINE TYPE CONTINUATION element. For [v1/2] metafiles, interpreter treatment of edge type continuation shall be either: ☐ in the style of one specific parameter value, from the set of standard and registered values (excluding value 1) of the EDGE TYPE CONTINUATION element. Value = ? ☑ in the style of any parameter value, from the set of standard and registered values (excluding value 1) of the EDGE TYPE CONTINUATION element. Other: *None*

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Table 25 - Interpreter implementation requirements (continued)

Functionality	Specifications - PPF	Specifications - Model Profile
T.25.8 Error processing References: 7.5.7.6	Same as Model Profile ☑	
	Is error processing addressed? (yes/no) If yes, specify the action taken. Classification of error severity? Requirements for error recovery? Requirements for error reporting? Additional areas? Other:	Is error processing addressed? (yes/no) *No.* If yes, specify the action taken. Classification of error severity? Requirements for error recovery? Requirements for error reporting? Additional areas? Other: *None*
T.25.9 Reporting References: 7.5.7.7	Same as Model Profile ☑	
	Is reporting required? (yes/no) If yes, specify the action taken. Method and format of the reporting? Requirement to report any substitution, error, fallback behaviour, mappings, or other behaviors? Additional areas? Other:	Is reporting required? (yes/no) *No.* If yes, specify the action taken. Method and format of the reporting? Requirement to report any substitution, error, fallback behaviour, mappings, or other behaviors? Additional areas? Other: *None.*
T.25.10 Degeneracies References: 7.5.7.8 7.5.4.4 D.2 D.4	Same as Model Profile ☑	
	Is the interpretation of degenerate primitives addressed? (yes/no) If yes, for each primitive, specify the degeneracy including its source (i.e., intrinsic or computational). Other:	Is the interpretation of degenerate primitives addressed? (yes/no) ***Yes.*** If yes, for each primitive, specify the degeneracy including its source (i.e., intrinsic or computational). ***Intrinsically degenerate primitives shall be rendered as specified in annex D subsections: D.2.2, D.2.3, D.4.5.4 through D.4.5.8, D.4.5.11, and D.4.5.12. Interpreters are not required to detect computational degeneracy. If interpreters do detect computational degeneracies, they shall be rendered as specified in annex D subsections: D.2.2, D.2.3, D.4.5.4 through D.4.5.8, D.4.5.11, and D.4.5.12*** Other: *None.*

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Table 25 - Interpreter implementation requirements (continued)

Attachment 25.~~4~~3
Colour requirements, ~~Model Profile~~:

The colour mapping step (CMS) and colour rendering step (CRS) for each class of interpreters is as follows:

monochrome:	CMS	all foreground information is mapped to one colour, background information to another colour.
	CRS	all foreground information is mapped to one colour, background information to another colour.
greyscale:	CMS	32 grey levels, the recommendations of annex D.3.2 is used to map colour to grey.
	CRS	a unique representation of each of the levels of grey.
full colour:	CMS	~~5R,9G,5B~~ grid of RGB colour cube, plus a 32 grey levels (0-1), some of which are already on the grid.
	CRS	a unique representation of ~~the 254 (255) "colours"~~.

these 4096 "colours"

16R, 16G, 16B

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CHARACTER ENCODING

Table 5 - Metafile descriptor elements

Element	Specifications - PPF	Specifications - Model Profile
T.5.1 INTEGER PRECISION [v1] References: 8.2.4	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***5, 8, 10, 15, 16, 17, or 32.*** Other: ***None.***
T.5.2 REAL PRECISION [v1] References: 8.2.5	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***10 16 32 32 64 (largest real)*** ***-10 16 -32 -9 -12 (smallest real)*** ***-10 -16 -32 -9 -12 (default exponent)*** ***1 1 1 0 0 (exponent allowed)*** Other: ***None.***
T.5.3 INDEX PRECISION [v1] References: 8.2.6	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***5, 8, 10, 15, 16, 17, or 32.*** Other: ***None.***

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Table 5 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.5.4	Same as Model Profile ☑	
COLOUR PRECISION [v1] References: 8.2.7	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***5, 8, 10, 15, 16, or 17.*** Other: ***None.***
T.5.5	Same as Model Profile ☑	
COLOUR INDEX PRECISION [v1] References: 8.2.8	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***5, 8, 10, 15, 16, or 17.*** Other: ***None.***
T.5.6	Same as Model Profile ☑	
NAME PRECISION [v2] References: 8.2.16	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***5, 10, 15, 16, or 32.*** Other: ***None.***

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Table 6 - Control elements

Element	Specifications - PPF	Specifications - Model Profile
T.6.1 VDC INTEGER PRECISION [v1] References: 8.4.1	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***5, 8, 10, 15, 16, 17, or 32.*** Other: ***None.***
T.6.2 VDC REAL PRECISION [v1] References: 8.4.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***10 16 32 32 64 (largest real)*** ***-10 16 -32 -9 -12 (smallest real)*** ***-10 -16 -32 -9 -12 (default exponent)*** ***1 1 1 0 0 (exponent allowed)*** Other: ***None.***

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Table 7 - Escape elements

Element	Specifications - PPF	Specifications - Model Profile
T.7.1 DOMAIN RING [v1] References: 8.7.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Permitted ☐ Prohibited ☑ Any restrictions on the parameter value? Other: ***None.***

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BINARY ENCODING

Table 12 - Delimiter elements

Element	Specifications - PPF	Specifications - Model Profile
T.12.1 no-op [v1] References: 7.2	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	 Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***None.*** Other: ***None.***

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Table 13 - Metafile descriptor elements

Element	Specifications - PPF	Specifications - Model Profile
T.13.1 INTEGER PRECISION [v1] References: 7.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***8, 16, or 32.*** Other: ***None.***
T.13.2 REAL PRECISION [v1] References: 7.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***(1, 16, 16) or (0, 9, 23).*** Other: ***None.***
T.13.3 INDEX PRECISION [v1] References: 7.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***8, 16, or 32.*** Other: ***None.***

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Table 13 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.13.4 COLOUR PRECISION [v1] References: 7.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***8 or 16.*** Other: ***None.***
T.13.5 COLOUR INDEX PRECISION [v1] References: 7.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***8 or 16.*** Other: ***None.***
T.13.6 NAME PRECISION [v2] References: 7.3	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***16 or 32.*** Other: ***None.***

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Table 14 - Control elements

Element	Specifications - PPF	Specifications - Model Profile
T.14.1 VDC INTEGER PRECISION [v1] References: 7.5	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***16 or 32.*** Other: ***None.***
T.14.2 VDC REAL PRECISION [v1] References: 7.5	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***(1, 16, 16) or (0, 9, 32).*** Other: ***None.***

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Table 1 - Metafile descriptor elements

CLEAR TEXT ENCODING

Element	Specifications - PPF	Specifications - Model Profile
T.1.1 INTEGER PRECISION [v1] References: 6.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***[-256, 255], [-32767, 32767],*** ***[-32768, 32767], or*** ***[-2147483648, 2147483647].*** Other: ***None.***
T.1.2 REAL PRECISION [v1] References: 6.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***-32767, 32767, 4; or*** ***-32768, 32767, 10; or*** ***-3.4028235E38, +3.4028235E38,8.*** ***NOTE —the latter two values are the closest approximation, in base 10 clear text, to the REAL PRECISION values allowed in Binary encoded CGMs.*** Other: ***None.***
T.1.3 INDEX PRECISION [v1] References: 6.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***[0, 127], [-256, 255], [-32767, 32767],*** ***[-32768, 32767], or*** ***[-2147483648, 2147483647].*** Other: ***None.***

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Table 1 - Metafile descriptor elements (continued)

Element	Specifications - PPF	Specifications - Model Profile
T.1.4 COLOUR PRECISION [v1] References: 6.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***255 or 65535*** Other: ***None.***
T.1.5 COLOUR INDEX PRECISION [v1] References: 6.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***127, 255, 32767.*** Other: ***None.***
T.1.6 NAME PRECISION [v2] References: 6.2	Same as Model Profile ☑	
	Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? ***[-256, 255], [-32767, 32767],*** ***[-32768, 32767], or*** ***[-2147483648, 2147483647].*** Other: ***None.***

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Table 2 - Control elements

Element	Specifications - PPF	Specifications - Model Profile
T.2.1 VDC INTEGER PRECISION [v1] References: 6.4	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Any restrictions on the parameter value? Other:	 Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? *[-32767, 32767], [-32768, 32767], or [-2147483648, 2147483647].* Other: *None.*
T.2.2 VDC REAL PRECISION [v1] References: 6.4	Same as Model Profile ☑ Element is: Required ☐ Permitted ☐ Prohibited ☐ Any restrictions on the parameter value? Other:	 Element is: Required ☐ Permitted ☑ Any restrictions on the parameter value? *0.0, 1.0, 4; or* *-32767, 32767, 4; or* *-32768, 32767, 10; or* *-3.4028235E38, +3.4028235E38,8.* *NOTE —the latter two values are the closest approximation, in base 10 clear text, to the REAL PRECISION values allowed in Binary encoded CGMs.* Other: *None.*

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Annex A

(Normative)

Font character codes and metrics

A.1 Introduction

This annex defines the association of numeric character code value to glyph for the fonts listed in this part of ISO/IEC ISP 12071 which extend the list given in the Model Profile. The specifications of those fonts and the description associated with the metrics are given in Annex H of ISO/IEC 8632-1/Amd.1.

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AvantGarde-Book

CapHeight = 740

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	867	128			192	À	740
1			65	A	740	129			193	Á	740
2			66	B	574	130			194	Â	740
3			67	C	813	131			195	Ã	740
4			68	D	744	132			196	Ä	740
5			69	E	536	133			197	Å	740
6			70	F	485	134			198	Æ	992
7			71	G	872	135			199	Ç	813
8			72	H	683	136			200	È	536
9			73	I	226	137			201	É	536
10			74	J	482	138			202	Ê	536
11			75	K	591	139			203	Ë	536
12			76	L	462	140			204	Ì	226
13			77	M	919	141			205	Í	226
14			78	N	740	142			206	Î	226
15			79	O	869	143			207	Ï	226
16			80	P	592	144			208	Ð	790
17			81	Q	871	145			209	Ñ	740
18			82	R	607	146			210	Ò	869
19			83	S	498	147			211	Ó	869
20			84	T	426	148			212	Ô	869
21			85	U	655	149			213	Õ	869
22			86	V	702	150			214	Ö	869
23			87	W	960	151			215	×	606
24			88	X	609	152			216	Ø	868
25			89	Y	592	153			217	Ù	655
26			90	Z	480	154			218	Ú	655
27			91	[	351	155			219	Û	655
28			92	\	605	156			220	Ü	655
29			93	]	351	157			221	Ý	592
30			94	^	606	158			222	Þ	592
31			95	_	500	159			223	ß	554
32		277	96	`	351	160		277	224	à	683
33	!	295	97	a	683	161	¡	295	225	á	683
34	"	309	98	b	682	162	¢	554	226	â	683
35	#	554	99	c	647	163	£	554	227	ã	683
36	$	554	100	d	685	164	¤	554	228	ä	683
37	%	775	101	e	650	165	¥	554	229	å	683
38	&	757	102	f	314	166	¦	672	230	æ	1157
39	'	351	103	g	673	167	§	615	231	ç	647
40	(	369	104	h	610	168	¨	369	232	è	650
41	)	369	105	i	200	169	©	747	233	é	650
42	*	425	106	j	203	170	ª	369	234	ê	650
43	+	606	107	k	502	171	«	425	235	ë	650
44	,	277	108	l	200	172	¬	606	236	ì	200
45	–	606	109	m	938	173	-	332	237	í	200
46	.	277	110	n	610	174	®	747	238	î	200
47	/	437	111	o	655	175	¯	485	239	ï	200
48	0	554	112	p	682	176	°	400	240	ð	655
49	1	554	113	q	682	177	±	606	241	ñ	610
50	2	554	114	r	301	178	²	332	242	ò	655
51	3	554	115	s	388	179	³	332	243	ó	655
52	4	554	116	t	339	180	´	375	244	ô	655
53	5	554	117	u	608	181	µ	608	245	õ	655
54	6	554	118	v	554	182	¶	564	246	ö	655
55	7	554	119	w	831	183	·	277	247	÷	606
56	8	554	120	x	480	184	¸	324	248	ø	653
57	9	554	121	y	536	185	¹	332	249	ù	608
58	:	277	122	z	425	186	º	369	250	ú	608
59	;	277	123	{	351	187	»	425	251	û	608
60	<	606	124	|	672	188	¼	831	252	ü	608
61	=	606	125	}	351	189	½	831	253	ý	536
62	>	606	126	~	606	190	¾	831	254	þ	682
63	?	591	127			191	¿	591	255	ÿ	536

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AvantGarde-BookOblique

CapHeight = 740

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	867	128			192	À	740
1			65	A	740	129			193	Á	740
2			66	B	574	130			194	Â	740
3			67	C	813	131			195	Ã	740
4			68	D	744	132			196	Ä	740
5			69	E	536	133			197	Å	740
6			70	F	485	134			198	Æ	992
7			71	G	872	135			199	Ç	813
8			72	H	683	136			200	È	536
9			73	I	226	137			201	É	536
10			74	J	482	138			202	Ê	536
11			75	K	591	139			203	Ë	536
12			76	L	462	140			204	Ì	226
13			77	M	919	141			205	Í	226
14			78	N	740	142			206	Î	226
15			79	O	869	143			207	Ï	226
16			80	P	592	144			208	Ð	790
17			81	Q	871	145			209	Ñ	740
18			82	R	607	146			210	Ò	869
19			83	S	498	147			211	Ó	869
20			84	T	426	148			212	Ô	869
21			85	U	655	149			213	Õ	869
22			86	V	702	150			214	Ö	869
23			87	W	960	151			215	×	606
24			88	X	609	152			216	Ø	868
25			89	Y	592	153			217	Ù	655
26			90	Z	480	154			218	Ú	655
27			91	(	351	155			219	Û	655
28			92	\	605	156			220	Ü	655
29			93	)	351	157			221	Ý	592
30			94	^	606	158			222	Þ	592
31			95	_	500	159			223	ß	554
32		277	96	`	351	160		277	224	à	683
33	!	295	97	a	683	161	¡	295	225	á	683
34	"	309	98	b	682	162	¢	554	226	â	683
35	#	554	99	c	647	163	£	554	227	ã	683
36	$	554	100	d	685	164	¤	554	228	ä	683
37	%	775	101	e	650	165	¥	554	229	å	683
38	&	757	102	f	314	166	¦	672	230	æ	1157
39	'	351	103	g	673	167	§	615	231	ç	647
40	(	369	104	h	610	168	¨	369	232	è	650
41	)	369	105	i	200	169	©	747	233	é	650
42	*	425	106	j	203	170	ª	369	234	ê	650
43	+	606	107	k	502	171	«	425	235	ë	650
44	,	277	108	l	200	172	¬	606	236	ì	200
45	–	606	109	m	938	173	-	332	237	í	200
46	.	277	110	n	610	174	®	747	238	î	200
47	/	437	111	o	655	175	¯	485	239	ï	200
48	0	554	112	p	682	176	°	400	240	ð	655
49	1	554	113	q	682	177	±	606	241	ñ	610
50	2	554	114	r	301	178	²	332	242	ò	655
51	3	554	115	s	388	179	³	332	243	ó	655
52	4	554	116	t	339	180	´	375	244	ô	655
53	5	554	117	u	608	181	µ	608	245	õ	655
54	6	554	118	v	554	182	¶	564	246	ö	655
55	7	554	119	w	831	183	·	277	247	÷	606
56	8	554	120	x	480	184	¸	324	248	ø	653
57	9	554	121	y	536	185	¹	332	249	ù	608
58	:	277	122	z	425	186	º	369	250	ú	608
59	;	277	123	{	351	187	»	425	251	û	608
60	<	606	124	|	672	188	¼	831	252	ü	608
61	=	606	125	}	351	189	½	831	253	ý	536
62	>	606	126	~	606	190	¾	831	254	þ	682
63	?	591	127			191	¿	591	255	ÿ	536

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AvantGarde-Demi

CapHeight = 740

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	740	128			192	À	740
1			65	A	740	129			193	Á	740
2			66	B	580	130			194	Â	740
3			67	C	780	131			195	Ã	740
4			68	D	700	132			196	Ä	740
5			69	E	520	133			197	Å	740
6			70	F	480	134			198	Æ	900
7			71	G	840	135			199	Ç	780
8			72	H	680	136			200	È	520
9			73	I	280	137			201	É	520
10			74	J	480	138			202	Ê	520
11			75	K	620	139			203	Ë	520
12			76	L	440	140			204	Ì	280
13			77	M	900	141			205	Í	280
14			78	N	740	142			206	Î	280
15			79	O	840	143			207	Ï	280
16			80	P	560	144			208	Ð	742
17			81	Q	840	145			209	Ñ	740
18			82	R	580	146			210	Ò	840
19			83	S	520	147			211	Ó	840
20			84	T	420	148			212	Ô	840
21			85	U	640	149			213	Õ	840
22			86	V	700	150			214	Ö	840
23			87	W	900	151			215	×	600
24			88	X	680	152			216	Ø	840
25			89	Y	620	153			217	Ù	640
26			90	Z	500	154			218	Ú	640
27			91	[	320	155			219	Û	640
28			92	\	640	156			220	Ü	640
29			93	]	320	157			221	Ý	620
30			94	^	600	158			222	Þ	560
31			95	_	500	159			223	ß	600
32		280	96	`	280	160		280	224	à	660
33	!	280	97	a	660	161	¡	280	225	á	660
34	"	360	98	b	660	162	¢	560	226	â	660
35	#	560	99	c	640	163	£	560	227	ã	660
36	$	560	100	d	660	164	¤	560	228	ä	660
37	%	860	101	e	640	165	¥	560	229	å	660
38	&	680	102	f	280	166	¦	600	230	æ	1080
39	'	280	103	g	660	167	§	560	231	ç	640
40	(	380	104	h	600	168	¨	500	232	è	640
41	)	380	105	i	240	169	©	740	233	é	640
42	*	440	106	j	260	170	ª	360	234	ê	640
43	+	600	107	k	580	171	«	460	235	ë	640
44	,	280	108	l	240	172	¬	600	236	ì	240
45	–	600	109	m	940	173	-	420	237	í	240
46	.	280	110	n	600	174	®	740	238	î	240
47	/	460	111	o	640	175	¯	420	239	ï	240
48	0	560	112	p	660	176	°	400	240	ð	640
49	1	560	113	q	660	177	±	600	241	ñ	600
50	2	560	114	r	320	178	²	336	242	ò	640
51	3	560	115	s	440	179	³	336	243	ó	640
52	4	560	116	t	300	180	´	420	244	ô	640
53	5	560	117	u	600	181	µ	576	245	õ	640
54	6	560	118	v	560	182	¶	600	246	ö	640
55	7	560	119	w	800	183	·	280	247	÷	600
56	8	560	120	x	560	184	¸	340	248	ø	660
57	9	560	121	y	580	185	¹	336	249	ù	600
58	:	280	122	z	460	186	º	360	250	ú	600
59	;	280	123	{	340	187	»	460	251	û	600
60	<	600	124	|	600	188	¼	840	252	ü	600
61	=	600	125	}	340	189	½	840	253	ý	580
62	>	600	126	~	600	190	¾	840	254	þ	660
63	?	560	127			191	¿	560	255	ÿ	580

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AvantGarde-DemiOblique

CapHeight = 740

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	740	128			192	À	740
1			65	A	740	129			193	Á	740
2			66	B	580	130			194	Â	740
3			67	C	780	131			195	Ã	740
4			68	D	700	132			196	Ä	740
5			69	E	520	133			197	Å	740
6			70	F	480	134			198	Æ	900
7			71	G	840	135			199	Ç	780
8			72	H	680	136			200	È	520
9			73	I	280	137			201	É	520
10			74	J	480	138			202	Ê	520
11			75	K	620	139			203	Ë	520
12			76	L	440	140			204	Ì	280
13			77	M	900	141			205	Í	280
14			78	N	740	142			206	Î	280
15			79	O	840	143			207	Ï	280
16			80	P	560	144			208	Ð	742
17			81	Q	840	145			209	Ñ	740
18			82	R	580	146			210	Ò	840
19			83	S	520	147			211	Ó	840
20			84	T	420	148			212	Ô	840
21			85	U	640	149			213	Õ	840
22			86	V	700	150			214	Ö	840
23			87	W	900	151			215	×	600
24			88	X	680	152			216	Ø	840
25			89	Y	620	153			217	Ù	640
26			90	Z	500	154			218	Ú	640
27			91	[	320	155			219	Û	640
28			92	\	640	156			220	Ü	640
29			93	]	320	157			221	Ý	620
30			94	^	600	158			222	Þ	560
31			95	_	500	159			223	ß	600
32		280	96	`	280	160		280	224	à	660
33	!	280	97	a	660	161	¡	280	225	á	660
34	"	360	98	b	660	162	¢	560	226	â	660
35	#	560	99	c	640	163	£	560	227	ã	660
36	$	560	100	d	660	164	¤	560	228	ä	660
37	%	860	101	e	640	165	¥	560	229	å	660
38	&	680	102	f	280	166	¦	600	230	æ	1080
39	'	280	103	g	660	167	§	560	231	ç	640
40	(	380	104	h	600	168	¨	500	232	è	640
41	)	380	105	i	240	169	©	740	233	é	640
42	*	440	106	j	260	170	ª	360	234	ê	640
43	+	600	107	k	580	171	«	460	235	ë	640
44	,	280	108	l	240	172	¬	600	236	ì	240
45	–	600	109	m	940	173	-	420	237	í	240
46	.	280	110	n	600	174	®	740	238	î	240
47	/	460	111	o	640	175	¯	420	239	ï	240
48	0	560	112	p	660	176	°	400	240	ð	640
49	1	560	113	q	660	177	±	600	241	ñ	600
50	2	560	114	r	320	178	²	336	242	ò	640
51	3	560	115	s	440	179	³	336	243	ó	640
52	4	560	116	t	300	180	´	420	244	ô	640
53	5	560	117	u	600	181	µ	576	245	õ	640
54	6	560	118	v	560	182	¶	600	246	ö	640
55	7	560	119	w	800	183	·	280	247	÷	600
56	8	560	120	x	560	184	¸	340	248	ø	660
57	9	560	121	y	580	185	¹	336	249	ù	600
58	:	280	122	z	460	186	º	360	250	ú	600
59	;	280	123	{	340	187	»	460	251	û	600
60	<	600	124	|	600	188	¼	840	252	ü	600
61	=	600	125	}	340	189	½	840	253	ý	580
62	>	600	126	~	600	190	¾	840	254	þ	660
63	?	560	127			191	¿	560	255	ÿ	580

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Bookman-Demi

CapHeight = 681

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	820	128			192	À	720
1			65	A	720	129			193	Á	720
2			66	B	720	130			194	Â	720
3			67	C	740	131			195	Ã	720
4			68	D	780	132			196	Ä	720
5			69	E	720	133			197	Å	720
6			70	F	680	134			198	Æ	1140
7			71	G	780	135			199	Ç	740
8			72	H	820	136			200	È	720
9			73	I	400	137			201	É	720
10			74	J	640	138			202	Ê	720
11			75	K	800	139			203	Ë	720
12			76	L	640	140			204	Ì	400
13			77	M	940	141			205	Í	400
14			78	N	740	142			206	Î	400
15			79	O	800	143			207	Ï	400
16			80	P	660	144			208	Ð	780
17			81	Q	800	145			209	Ñ	740
18			82	R	780	146			210	Ò	800
19			83	S	660	147			211	Ó	800
20			84	T	700	148			212	Ô	800
21			85	U	740	149			213	Õ	800
22			86	V	720	150			214	Ö	800
23			87	W	940	151			215	×	600
24			88	X	780	152			216	Ø	800
25			89	Y	700	153			217	Ù	740
26			90	Z	640	154			218	Ú	740
27			91	[	300	155			219	Û	740
28			92	\	600	156			220	Ü	740
29			93	]	300	157			221	Ý	700
30			94	^	600	158			222	Þ	660
31			95	_	500	159			223	ß	660
32		340	96	`	320	160		340	224	à	580
33	!	360	97	a	580	161	¡	360	225	á	580
34	"	420	98	b	600	162	¢	660	226	â	580
35	#	660	99	c	580	163	£	660	227	ã	580
36	$	660	100	d	640	164	¤	660	228	ä	580
37	%	940	101	e	580	165	¥	660	229	å	580
38	&	800	102	f	380	166	¦	600	230	æ	880
39	'	320	103	g	580	167	§	600	231	ç	580
40	(	320	104	h	680	168	¨	500	232	è	580
41	)	320	105	i	360	169	©	740	233	é	580
42	*	460	106	j	340	170	ª	400	234	ê	580
43	+	600	107	k	660	171	«	400	235	ë	580
44	,	340	108	l	340	172	¬	600	236	ì	360
45	-	600	109	m	1000	173	-	360	237	í	360
46	.	340	110	n	680	174	®	740	238	î	360
47	/	600	111	o	620	175	¯	460	239	ï	360
48	0	660	112	p	640	176	°	400	240	ð	620
49	1	660	113	q	620	177	±	600	241	ñ	680
50	2	660	114	r	460	178	²	396	242	ò	620
51	3	660	115	s	520	179	³	396	243	ó	620
52	4	660	116	t	460	180	´	400	244	ô	620
53	5	660	117	u	660	181	µ	660	245	õ	620
54	6	660	118	v	600	182	¶	800	246	ö	620
55	7	660	119	w	800	183	·	340	247	÷	600
56	8	660	120	x	600	184	¸	360	248	ø	620
57	9	660	121	y	620	185	¹	396	249	ù	660
58	:	340	122	z	560	186	º	400	250	ú	660
59	;	340	123	{	320	187	»	400	251	û	660
60	<	600	124	|	600	188	¼	990	252	ü	660
61	=	600	125	}	320	189	½	990	253	ý	620
62	>	600	126	~	600	190	¾	990	254	þ	640
63	?	660	127			191	¿	660	255	ÿ	620

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Bookman-DemiItalic

CapHeight = 681

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	780	128			192	À	720
1			65	A	720	129			193	Á	720
2			66	B	720	130			194	Â	720
3			67	C	700	131			195	Ã	720
4			68	D	760	132			196	Ä	720
5			69	E	720	133			197	Å	720
6			70	F	660	134			198	Æ	1140
7			71	G	760	135			199	Ç	700
8			72	H	800	136			200	È	720
9			73	I	380	137			201	É	720
10			74	J	620	138			202	Ê	720
11			75	K	780	139			203	Ë	720
12			76	L	640	140			204	Ì	380
13			77	M	860	141			205	Í	380
14			78	N	740	142			206	Î	380
15			79	O	760	143			207	Ï	380
16			80	P	640	144			208	Ð	760
17			81	Q	760	145			209	Ñ	740
18			82	R	740	146			210	Ò	760
19			83	S	700	147			211	Ó	760
20			84	T	700	148			212	Ô	760
21			85	U	740	149			213	Õ	760
22			86	V	660	150			214	Ö	760
23			87	W	1000	151			215	×	600
24			88	X	740	152			216	Ø	760
25			89	Y	660	153			217	Ù	740
26			90	Z	680	154			218	Ú	740
27			91	[	260	155			219	Û	740
28			92	\	580	156			220	Ü	740
29			93	]	260	157			221	Ý	660
30			94	^	620	158			222	Þ	640
31			95	_	500	159			223	ß	660
32		340	96	`	320	160		340	224	à	680
33	!	320	97	a	680	161	¡	320	225	á	680
34	"	380	98	b	600	162	¢	680	226	â	680
35	#	680	99	c	560	163	£	680	227	ã	680
36	$	680	100	d	680	164	¤	680	228	ä	680
37	%	880	101	e	560	165	¥	680	229	å	680
38	&	980	102	f	420	166	¦	620	230	æ	880
39	'	320	103	g	620	167	§	620	231	ç	560
40	(	260	104	h	700	168	¨	520	232	è	560
41	)	260	105	i	380	169	©	780	233	é	560
42	*	460	106	j	320	170	ª	440	234	ê	560
43	+	600	107	k	700	171	«	380	235	ë	560
44	,	340	108	l	380	172	¬	620	236	ì	380
45	-	600	109	m	960	173	-	280	237	í	380
46	.	340	110	n	680	174	®	780	238	î	380
47	/	360	111	o	600	175	¯	480	239	ï	380
48	0	680	112	p	660	176	°	400	240	ð	600
49	1	680	113	q	620	177	±	600	241	ñ	680
50	2	680	114	r	500	178	²	408	242	ò	600
51	3	680	115	s	540	179	³	408	243	ó	600
52	4	680	116	t	440	180	´	340	244	ô	600
53	5	680	117	u	680	181	µ	680	245	õ	600
54	6	680	118	v	540	182	¶	680	246	ö	600
55	7	680	119	w	860	183	·	340	247	+	600
56	8	680	120	x	620	184	¸	360	248	ø	600
57	9	680	121	y	600	185	¹	408	249	ù	680
58	:	340	122	z	560	186	º	440	250	ú	680
59	;	340	123	{	300	187	»	380	251	û	680
60	<	620	124	|	620	188	¼	1020	252	ü	680
61	=	600	125	}	300	189	½	1020	253	ý	600
62	>	620	126	~	620	190	¾	1020	254	þ	660
63	?	620	127			191	¿	620	255	ÿ	600

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Bookman-Light

CapHeight = 681

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	820	128			192	À	680
1			65	A	680	129			193	Á	680
2			66	B	740	130			194	Â	680
3			67	C	740	131			195	Ã	680
4			68	D	800	132			196	Ä	680
5			69	E	720	133			197	Å	680
6			70	F	640	134			198	Æ	1260
7			71	G	800	135			199	Ç	740
8			72	H	800	136			200	È	720
9			73	I	340	137			201	É	720
10			74	J	600	138			202	Ê	720
11			75	K	720	139			203	Ë	720
12			76	L	600	140			204	Ì	340
13			77	M	920	141			205	Í	340
14			78	N	740	142			206	Î	340
15			79	O	800	143			207	Ï	340
16			80	P	620	144			208	Ð	800
17			81	Q	820	145			209	Ñ	740
18			82	R	720	146			210	Ò	800
19			83	S	660	147			211	Ó	800
20			84	T	620	148			212	Ô	800
21			85	U	780	149			213	Õ	800
22			86	V	700	150			214	Ö	800
23			87	W	960	151			215	×	600
24			88	X	720	152			216	Ø	800
25			89	Y	640	153			217	Ù	780
26			90	Z	640	154			218	Ú	780
27			91	[	300	155			219	Û	780
28			92	\	600	156			220	Ü	780
29			93	]	300	157			221	Ý	640
30			94	^	600	158			222	Þ	620
31			95	_	500	159			223	ß	660
32		320	96	`	220	160		320	224	à	580
33	!	300	97	a	580	161	¡	300	225	á	580
34	"	380	98	b	620	162	¢	620	226	â	580
35	#	620	99	c	520	163	£	620	227	ã	580
36	$	620	100	d	620	164	¤	620	228	ä	580
37	%	900	101	e	520	165	¥	620	229	å	580
38	&	800	102	f	320	166	¦	600	230	æ	860
39	'	220	103	g	540	167	§	520	231	ç	520
40	(	300	104	h	660	168	¨	420	232	è	520
41	)	300	105	i	300	169	©	740	233	é	520
42	*	440	106	j	300	170	ª	420	234	ê	520
43	+	600	107	k	620	171	«	360	235	ë	520
44	,	320	108	l	300	172	¬	600	236	ì	300
45	–	600	109	m	940	173	-	400	237	í	300
46	.	320	110	n	660	174	®	740	238	î	300
47	/	600	111	o	560	175	¯	440	239	ï	300
48	0	620	112	p	620	176	°	400	240	ð	560
49	1	620	113	q	580	177	±	600	241	ñ	660
50	2	620	114	r	440	178	²	372	242	ò	560
51	3	620	115	s	520	179	³	372	243	ó	560
52	4	620	116	t	380	180	´	340	244	ô	560
53	5	620	117	u	680	181	µ	680	245	õ	560
54	6	620	118	v	520	182	¶	600	246	ö	560
55	7	620	119	w	780	183	·	320	247	÷	600
56	8	620	120	x	560	184	¸	320	248	ø	560
57	9	620	121	y	540	185	¹	372	249	ù	680
58	:	320	122	z	480	186	º	420	250	ú	680
59	;	320	123	{	280	187	»	360	251	û	680
60	<	600	124	|	600	188	¼	930	252	ü	680
61	=	600	125	}	280	189	½	930	253	ý	540
62	>	600	126	~	600	190	¾	930	254	þ	620
63	?	540	127			191	¿	540	255	ÿ	540

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Bookman-LightItalic

CapHeight = 681

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	780	128			192	À	700
1			65	A	700	129			193	Á	700
2			66	B	720	130			194	Â	700
3			67	C	720	131			195	Ã	700
4			68	D	740	132			196	Ä	700
5			69	E	680	133			197	Å	700
6			70	F	620	134			198	Æ	1220
7			71	G	760	135			199	Ç	720
8			72	H	800	136			200	È	680
9			73	I	320	137			201	É	680
10			74	J	560	138			202	Ê	680
11			75	K	720	139			203	Ë	680
12			76	L	580	140			204	Ì	320
13			77	M	860	141			205	Í	320
14			78	N	720	142			206	Î	320
15			79	O	760	143			207	Ï	320
16			80	P	600	144			208	Ð	740
17			81	Q	780	145			209	Ñ	720
18			82	R	700	146			210	Ò	760
19			83	S	640	147			211	Ó	760
20			84	T	600	148			212	Ô	760
21			85	U	720	149			213	Õ	760
22			86	V	680	150			214	Ö	760
23			87	W	960	151			215	×	600
24			88	X	700	152			216	Ø	760
25			89	Y	660	153			217	Ù	720
26			90	Z	580	154			218	Ú	720
27			91	[	260	155			219	Û	720
28			92	\	600	156			220	Ü	720
29			93	]	260	157			221	Ý	660
30			94	^	600	158			222	Þ	600
31			95	_	500	159			223	ß	620
32		300	96	`	280	160		300	224	à	620
33	!	320	97	a	620	161	¡	320	225	á	620
34	"	360	98	b	600	162	¢	620	226	â	620
35	#	620	99	c	480	163	£	620	227	ã	620
36	$	620	100	d	640	164	¤	620	228	ä	620
37	%	800	101	e	540	165	¥	620	229	å	620
38	&	820	102	f	340	166	¦	600	230	æ	880
39	'	280	103	g	560	167	§	620	231	ç	480
40	(	280	104	h	620	168	¨	420	232	è	540
41	)	280	105	i	280	169	©	740	233	é	540
42	*	440	106	j	280	170	ª	440	234	ê	540
43	+	600	107	k	600	171	«	300	235	ë	540
44	,	300	108	l	280	172	¬	600	236	ì	280
45	-	600	109	m	880	173	-	320	237	í	280
46	.	300	110	n	620	174	®	740	238	î	280
47	/	600	111	o	540	175	¯	440	239	ï	280
48	0	620	112	p	600	176	°	400	240	ð	540
49	1	620	113	q	560	177	±	600	241	ñ	620
50	2	620	114	r	400	178	²	372	242	ò	540
51	3	620	115	s	540	179	³	372	243	ó	540
52	4	620	116	t	340	180	´	320	244	ô	540
53	5	620	117	u	620	181	µ	620	245	õ	540
54	6	620	118	v	540	182	¶	620	246	ö	540
55	7	620	119	w	880	183	·	300	247	÷	600
56	8	620	120	x	540	184	¸	320	248	ø	540
57	9	620	121	y	600	185	¹	372	249	ù	620
58	:	300	122	z	520	186	º	400	250	ú	620
59	;	300	123	{	360	187	»	300	251	û	620
60	<	600	124	|	600	188	¼	930	252	ü	620
61	=	600	125	}	380	189	½	930	253	ý	600
62	>	600	126	~	600	190	¾	930	254	þ	600
63	?	540	127			191	¿	540	255	ÿ	600

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Helvetica-Narrow

CapHeight = 718

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	832	128			192	À	547
1			65	A	547	129			193	Á	547
2			66	B	547	130			194	Â	547
3			67	C	592	131			195	Ã	547
4			68	D	592	132			196	Ä	547
5			69	E	547	133			197	Å	547
6			70	F	501	134			198	Æ	820
7			71	G	638	135			199	Ç	592
8			72	H	592	136			200	È	547
9			73	I	228	137			201	É	547
10			74	J	410	138			202	Ê	547
11			75	K	547	139			203	Ë	547
12			76	L	456	140			204	Ì	228
13			77	M	683	141			205	Í	228
14			78	N	592	142			206	Î	228
15			79	O	638	143			207	Ï	228
16			80	P	547	144			208	Ð	592
17			81	Q	638	145			209	Ñ	592
18			82	R	592	146			210	Ò	638
19			83	S	547	147			211	Ó	638
20			84	T	501	148			212	Ô	638
21			85	U	592	149			213	Õ	638
22			86	V	547	150			214	Ö	638
23			87	W	774	151			215	×	479
24			88	X	547	152			216	Ø	638
25			89	Y	547	153			217	Ù	592
26			90	Z	501	154			218	Ú	592
27			91	[	228	155			219	Û	592
28			92	\	228	156			220	Ü	592
29			93	]	228	157			221	Ý	547
30			94	^	385	158			222	Þ	547
31			95	_	456	159			223	ß	501
32		228	96	`	182	160		228	224	à	456
33	!	228	97	a	456	161	¡	273	225	á	456
34	"	291	98	b	456	162	¢	456	226	â	456
35	#	456	99	c	410	163	£	456	227	ã	456
36	$	456	100	d	456	164	¤	456	228	ä	456
37	%	729	101	e	456	165	¥	456	229	å	456
38	&	547	102	f	228	166	¦	213	230	æ	729
39	'	182	103	g	456	167	§	456	231	ç	410
40	(	273	104	h	456	168	¨	273	232	è	456
41	)	273	105	i	182	169	©	604	233	é	456
42	*	319	106	j	182	170	ª	303	234	ê	456
43	+	479	107	k	410	171	«	456	235	ë	456
44	,	228	108	l	182	172	¬	479	236	ì	228
45	-	479	109	m	683	173	-	273	237	í	228
46	.	228	110	n	456	174	®	604	238	î	228
47	/	228	111	o	456	175	¯	273	239	ï	228
48	0	456	112	p	456	176	°	328	240	ð	456
49	1	456	113	q	456	177	±	479	241	ñ	456
50	2	456	114	r	273	178	²	273	242	ò	456
51	3	456	115	s	410	179	³	273	243	ó	456
52	4	456	116	t	228	180	´	273	244	ô	456
53	5	456	117	u	456	181	µ	456	245	õ	456
54	6	456	118	v	410	182	¶	440	246	ö	456
55	7	456	119	w	592	183	·	228	247	÷	479
56	8	456	120	x	410	184	¸	273	248	ø	501
57	9	456	121	y	410	185	¹	273	249	ù	456
58	:	228	122	z	410	186	º	299	250	ú	456
59	;	228	123	{	274	187	»	456	251	û	456
60	<	479	124	|	213	188	¼	684	252	ü	456
61	=	479	125	}	274	189	½	684	253	ý	410
62	>	479	126	~	479	190	¾	684	254	þ	456
63	?	456	127			191	¿	501	255	ÿ	410

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Helvetica-Narrow-Bold

CapHeight = 718

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	800	128			192	À	592
1			65	A	592	129			193	Á	592
2			66	B	592	130			194	Â	592
3			67	C	592	131			195	Ã	592
4			68	D	592	132			196	Ä	592
5			69	E	547	133			197	Å	592
6			70	F	501	134			198	Æ	820
7			71	G	638	135			199	Ç	592
8			72	H	592	136			200	È	547
9			73	I	228	137			201	É	547
10			74	J	456	138			202	Ê	547
11			75	K	592	139			203	Ë	547
12			76	L	501	140			204	Ì	228
13			77	M	683	141			205	Í	228
14			78	N	592	142			206	Î	228
15			79	O	638	143			207	Ï	228
16			80	P	547	144			208	Ð	592
17			81	Q	638	145			209	Ñ	592
18			82	R	592	146			210	Ò	638
19			83	S	547	147			211	Ó	638
20			84	T	501	148			212	Ô	638
21			85	U	592	149			213	Õ	638
22			86	V	547	150			214	Ö	638
23			87	W	774	151			215	×	479
24			88	X	547	152			216	Ø	638
25			89	Y	547	153			217	Ù	592
26			90	Z	501	154			218	Ú	592
27			91	[	273	155			219	Û	592
28			92	\	228	156			220	Ü	592
29			93	]	273	157			221	Ý	547
30			94	^	479	158			222	Þ	547
31			95	_	456	159			223	ß	501
32		228	96	`	228	160		228	224	à	456
33	!	273	97	a	456	161	¡	273	225	á	456
34	"	389	98	b	501	162	¢	456	226	â	456
35	#	456	99	c	456	163	£	456	227	ã	456
36	$	456	100	d	501	164	¤	456	228	ä	456
37	%	729	101	e	456	165	¥	456	229	å	456
38	&	592	102	f	273	166	¦	230	230	æ	729
39	'	228	103	g	501	167	§	456	231	ç	456
40	(	273	104	h	501	168	¨	273	232	è	456
41	)	273	105	i	228	169	©	604	233	é	456
42	*	319	106	j	228	170	ª	303	234	ê	456
43	+	479	107	k	456	171	«	456	235	ë	456
44	,	228	108	l	228	172	¬	479	236	ì	228
45	-	479	109	m	729	173	-	273	237	í	228
46	.	228	110	n	501	174	®	604	238	î	228
47	/	228	111	o	501	175	¯	273	239	ï	228
48	0	456	112	p	501	176	°	328	240	ð	501
49	1	456	113	q	501	177	±	479	241	ñ	501
50	2	456	114	r	319	178	²	273	242	ò	501
51	3	456	115	s	456	179	³	273	243	ó	501
52	4	456	116	t	273	180	´	273	244	ô	501
53	5	456	117	u	501	181	µ	501	245	õ	501
54	6	456	118	v	456	182	¶	456	246	ö	501
55	7	456	119	w	638	183	·	228	247	÷	479
56	8	456	120	x	456	184	¸	273	248	ø	501
57	9	456	121	y	456	185	¹	273	249	ù	501
58	:	273	122	z	410	186	º	299	250	ú	501
59	;	273	123	{	319	187	»	456	251	û	501
60	<	479	124	|	230	188	¼	684	252	ü	501
61	=	479	125	}	319	189	½	684	253	ý	456
62	>	479	126	~	479	190	¾	684	254	þ	501
63	?	501	127			191	¿	501	255	ÿ	456

--`,,```,,,,````-`-`,,`,,`,`,,`---

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Helvetica-Narrow-BoldOblique

CapHeight = 718

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	800	128			192	À	592
1			65	A	592	129			193	Á	592
2			66	B	592	130			194	Â	592
3			67	C	592	131			195	Ã	592
4			68	D	592	132			196	Ä	592
5			69	E	547	133			197	Å	592
6			70	F	501	134			198	Æ	820
7			71	G	638	135			199	Ç	592
8			72	H	592	136			200	È	547
9			73	I	228	137			201	É	547
10			74	J	456	138			202	Ê	547
11			75	K	592	139			203	Ë	547
12			76	L	501	140			204	Ì	228
13			77	M	683	141			205	Í	228
14			78	N	592	142			206	Î	228
15			79	O	638	143			207	Ï	228
16			80	P	547	144			208	Ð	592
17			81	Q	638	145			209	Ñ	592
18			82	R	592	146			210	Ò	638
19			83	S	547	147			211	Ó	638
20			84	T	501	148			212	Ô	638
21			85	U	592	149			213	Õ	638
22			86	V	547	150			214	Ö	638
23			87	W	774	151			215	×	479
24			88	X	547	152			216	Ø	638
25			89	Y	547	153			217	Ù	592
26			90	Z	501	154			218	Ú	592
27			91	[	273	155			219	Û	592
28			92	\	228	156			220	Ü	592
29			93	]	273	157			221	Ý	547
30			94	^	479	158			222	Þ	547
31			95	_	456	159			223	ß	501
32		228	96	`	228	160		228	224	à	456
33	!	273	97	a	456	161	¡	273	225	á	456
34	"	389	98	b	501	162	¢	456	226	â	456
35	#	456	99	c	456	163	£	456	227	ã	456
36	$	456	100	d	501	164	¤	456	228	ä	456
37	%	729	101	e	456	165	¥	456	229	å	456
38	&	592	102	f	273	166	¦	230	230	æ	729
39	'	228	103	g	501	167	§	456	231	ç	456
40	(	273	104	h	501	168	¨	273	232	è	456
41	)	273	105	i	228	169	©	604	233	é	456
42	*	319	106	j	228	170	ª	303	234	ê	456
43	+	479	107	k	456	171	«	456	235	ë	456
44	,	228	108	l	228	172	¬	479	236	ì	228
45	-	479	109	m	729	173		273	237	í	228
46	.	228	110	n	501	174	®	604	238	î	228
47	/	228	111	o	501	175	¯	273	239	ï	228
48	0	456	112	p	501	176	°	328	240	ð	501
49	1	456	113	q	501	177	±	479	241	ñ	501
50	2	456	114	r	319	178	²	273	242	ò	501
51	3	456	115	s	456	179	³	273	243	ó	501
52	4	456	116	t	273	180	´	273	244	ô	501
53	5	456	117	u	501	181	µ	501	245	õ	501
54	6	456	118	v	456	182	¶	456	246	ö	501
55	7	456	119	w	638	183	·	228	247	÷	479
56	8	456	120	x	456	184	¸	273	248	ø	501
57	9	456	121	y	456	185	¹	273	249	ù	501
58	:	273	122	z	410	186	º	299	250	ú	501
59	;	273	123	{	319	187	»	456	251	û	501
60	<	479	124	|	230	188	¼	684	252	ü	501
61	=	479	125	}	319	189	½	684	253	ý	456
62	>	479	126	~	479	190	¾	684	254	þ	501
63	?	501	127			191	¿	501	255	ÿ	456

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Helvetica-Narrow-Oblique

CapHeight = 718

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	832	128			192	À	547
1			65	A	547	129			193	Á	547
2			66	B	547	130			194	Â	547
3			67	C	592	131			195	Ã	547
4			68	D	592	132			196	Ä	547
5			69	E	547	133			197	Å	547
6			70	F	501	134			198	Æ	820
7			71	G	638	135			199	Ç	592
8			72	H	592	136			200	È	547
9			73	I	228	137			201	É	547
10			74	J	410	138			202	Ê	547
11			75	K	547	139			203	Ë	547
12			76	L	456	140			204	Ì	228
13			77	M	683	141			205	Í	228
14			78	N	592	142			206	Î	228
15			79	O	638	143			207	Ï	228
16			80	P	547	144			208	Ð	592
17			81	Q	638	145			209	Ñ	592
18			82	R	592	146			210	Ò	638
19			83	S	547	147			211	Ó	638
20			84	T	501	148			212	Ô	638
21			85	U	592	149			213	Õ	638
22			86	V	547	150			214	Ö	638
23			87	W	774	151			215	×	479
24			88	X	547	152			216	Ø	638
25			89	Y	547	153			217	Ù	592
26			90	Z	501	154			218	Ú	592
27			91	[	228	155			219	Û	592
28			92	\	228	156			220	Ü	592
29			93	]	228	157			221	Ý	547
30			94	^	385	158			222	Þ	547
31			95	_	456	159			223	ß	501
32		228	96	`	182	160		228	224	à	456
33	!	228	97	a	456	161	¡	273	225	á	456
34	"	291	98	b	456	162	¢	456	226	â	456
35	#	456	99	c	410	163	£	456	227	ã	456
36	$	456	100	d	456	164	¤	456	228	ä	456
37	%	729	101	e	456	165	¥	456	229	å	456
38	&	547	102	f	228	166	¦	213	230	æ	729
39	'	182	103	g	456	167	§	456	231	ç	410
40	(	273	104	h	456	168	¨	273	232	è	456
41	)	273	105	i	182	169	©	604	233	é	456
42	*	319	106	j	182	170	ª	303	234	ê	456
43	+	479	107	k	410	171	«	456	235	ë	456
44	,	228	108	l	182	172	¬	479	236	ì	228
45	–	479	109	m	683	173	-	273	237	í	228
46	.	228	110	n	456	174	®	604	238	î	228
47	/	228	111	o	456	175	¯	273	239	ï	228
48	0	456	112	p	456	176	°	328	240	ð	456
49	1	456	113	q	456	177	±	479	241	ñ	456
50	2	456	114	r	273	178	²	273	242	ò	456
51	3	456	115	s	410	179	³	273	243	ó	456
52	4	456	116	t	228	180	´	273	244	ô	456
53	5	456	117	u	456	181	µ	456	245	õ	456
54	6	456	118	v	410	182	¶	440	246	ö	456
55	7	456	119	w	592	183	·	228	247	÷	479
56	8	456	120	x	410	184	¸	273	248	ø	501
57	9	456	121	y	410	185	¹	273	249	ù	456
58	:	228	122	z	410	186	º	299	250	ú	456
59	;	228	123	{	274	187	»	456	251	û	456
60	<	479	124	|	213	188	¼	684	252	ü	456
61	=	479	125	}	274	189	½	684	253	ý	410
62	>	479	126	~	479	190	¾	684	254	þ	456
63	?	456	127			191	¿	501	255	ÿ	410

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NewCenturySchlbk-Bold

CapHeight = 722

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	747	128			192	À	759
1			65	A	759	129			193	Á	759
2			66	B	778	130			194	Â	759
3			67	C	778	131			195	Ã	759
4			68	D	833	132			196	Ä	759
5			69	E	759	133			197	Å	759
6			70	F	722	134			198	Æ	981
7			71	G	833	135			199	Ç	778
8			72	H	870	136			200	È	759
9			73	I	444	137			201	É	759
10			74	J	648	138			202	Ê	759
11			75	K	815	139			203	Ë	759
12			76	L	722	140			204	Ì	444
13			77	M	981	141			205	Í	444
14			78	N	833	142			206	Î	444
15			79	O	833	143			207	Ï	444
16			80	P	759	144			208	Ð	833
17			81	Q	833	145			209	Ñ	833
18			82	R	815	146			210	Ò	833
19			83	S	667	147			211	Ó	833
20			84	T	722	148			212	Ô	833
21			85	U	833	149			213	Õ	833
22			86	V	759	150			214	Ö	833
23			87	W	981	151			215	×	606
24			88	X	722	152			216	Ø	833
25			89	Y	722	153			217	Ù	833
26			90	Z	667	154			218	Ú	833
27			91	[	389	155			219	Û	833
28			92	\	606	156			220	Ü	833
29			93	]	389	157			221	Ý	722
30			94	^	606	158			222	Þ	759
31			95	_	500	159			223	ß	611
32		287	96	`	241	160		287	224	à	611
33	!	296	97	a	611	161	¡	296	225	á	611
34	"	333	98	b	648	162	¢	574	226	â	611
35	#	574	99	c	556	163	£	574	227	ã	611
36	$	574	100	d	667	164	¤	574	228	ä	611
37	%	833	101	e	574	165	¥	574	229	å	611
38	&	852	102	f	389	166	¦	606	230	æ	870
39	'	241	103	g	611	167	§	500	231	ç	556
40	(	389	104	h	685	168	¨	333	232	è	574
41	)	389	105	i	370	169	©	747	233	é	574
42	*	500	106	j	352	170	ª	367	234	ê	574
43	+	606	107	k	667	171	«	500	235	ë	574
44	,	278	108	l	352	172	¬	606	236	ì	370
45	-	606	109	m	963	173	-	333	237	í	370
46	.	278	110	n	685	174	®	747	238	î	370
47	/	278	111	o	611	175	¯	333	239	ï	370
48	0	574	112	p	667	176	°	400	240	ð	611
49	1	574	113	q	648	177	±	606	241	ñ	685
50	2	574	114	r	519	178	²	344	242	ò	611
51	3	574	115	s	500	179	³	344	243	ó	611
52	4	574	116	t	426	180	´	333	244	ô	611
53	5	574	117	u	685	181	µ	685	245	õ	611
54	6	574	118	v	611	182	¶	747	246	ö	611
55	7	574	119	w	889	183	·	278	247	÷	606
56	8	574	120	x	611	184	¸	333	248	ø	611
57	9	574	121	y	611	185	¹	344	249	ù	685
58	:	278	122	z	537	186	º	367	250	ú	685
59	;	278	123	{	389	187	»	500	251	û	685
60	<	606	124	|	606	188	¼	861	252	ü	685
61	=	606	125	}	389	189	½	861	253	ý	611
62	>	606	126	~	606	190	¾	861	254	þ	667
63	?	500	127			191	¿	500	255	ÿ	611

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NewCenturySchlbk-BoldItalic

CapHeight = 722

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	747	128			192	À	741
1			65	A	741	129			193	Á	741
2			66	B	759	130			194	Â	741
3			67	C	759	131			195	Ã	741
4			68	D	833	132			196	Ä	741
5			69	E	741	133			197	Å	741
6			70	F	704	134			198	Æ	889
7			71	G	815	135			199	Ç	759
8			72	H	870	136			200	È	741
9			73	I	444	137			201	É	741
10			74	J	667	138			202	Ê	741
11			75	K	778	139			203	Ë	741
12			76	L	704	140			204	Ì	444
13			77	M	944	141			205	Í	444
14			78	N	852	142			206	Î	444
15			79	O	833	143			207	Ï	444
16			80	P	741	144			208	Ð	833
17			81	Q	833	145			209	Ñ	852
18			82	R	796	146			210	Ò	833
19			83	S	685	147			211	Ó	833
20			84	T	722	148			212	Ô	833
21			85	U	833	149			213	Õ	833
22			86	V	741	150			214	Ö	833
23			87	W	944	151			215	×	606
24			88	X	741	152			216	Ø	833
25			89	Y	704	153			217	Ù	833
26			90	Z	704	154			218	Ú	833
27			91	[	407	155			219	Û	833
28			92	\	606	156			220	Ü	833
29			93	]	407	157			221	Ý	704
30			94	^	606	158			222	Þ	741
31			95		500	159			223	ß	574
32		287	96	`	259	160		287	224	à	667
33	!	333	97	a	667	161	¡	333	225	á	667
34	"	400	98	b	611	162	¢	574	226	â	667
35	#	574	99	c	537	163	£	574	227	ã	667
36	$	574	100	d	667	164	¤	574	228	ä	667
37	%	889	101	e	519	165	¥	574	229	å	667
38	&	889	102	f	389	166	¦	606	230	æ	815
39	'	259	103	g	611	167	§	500	231	ç	537
40	(	407	104	h	685	168	¨	333	232	è	519
41	)	407	105	i	389	169	©	747	233	é	519
42	*	500	106	j	370	170	ª	412	234	ê	519
43	+	606	107	k	648	171	«	481	235	ë	519
44	,	287	108	l	389	172	¬	606	236	ì	389
45	-	606	109	m	944	173	-	333	237	í	389
46	.	287	110	n	685	174	®	747	238	î	389
47	/	278	111	o	574	175	¯	333	239	ï	389
48	0	574	112	p	648	176	°	400	240	ð	574
49	1	574	113	q	630	177	±	606	241	ñ	685
50	2	574	114	r	519	178	²	344	242	ò	574
51	3	574	115	s	481	179	³	344	243	ó	574
52	4	574	116	t	407	180	´	333	244	ô	574
53	5	574	117	u	685	181	µ	685	245	õ	574
54	6	574	118	v	556	182	¶	650	246	ö	574
55	7	574	119	w	833	183	·	287	247	÷	606
56	8	574	120	x	574	184	¸	333	248	ø	574
57	9	574	121	y	519	185	¹	344	249	ù	685
58	:	287	122	z	519	186	º	356	250	ú	685
59	;	287	123	{	407	187	»	481	251	û	685
60	<	606	124	|	606	188	¼	861	252	ü	685
61	=	606	125	}	407	189	½	861	253	ý	519
62	>	606	126	~	606	190	¾	861	254	þ	648
63	?	481	127			191	¿	481	255	ÿ	519

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NewCenturySchlbk-Italic

CapHeight = 722

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	747	128			192	À	704
1			65	A	704	129			193	Á	704
2			66	B	722	130			194	Â	704
3			67	C	722	131			195	Ã	704
4			68	D	778	132			196	Ä	704
5			69	E	722	133			197	Å	704
6			70	F	667	134			198	Æ	870
7			71	G	778	135			199	Ç	722
8			72	H	833	136			200	È	722
9			73	I	407	137			201	É	722
10			74	J	611	138			202	Ê	722
11			75	K	741	139			203	Ë	722
12			76	L	667	140			204	Ì	407
13			77	M	944	141			205	Í	407
14			78	N	815	142			206	Î	407
15			79	O	778	143			207	Ï	407
16			80	P	667	144			208	Ð	778
17			81	Q	778	145			209	Ñ	815
18			82	R	741	146			210	Ò	778
19			83	S	667	147			211	Ó	778
20			84	T	685	148			212	Ô	778
21			85	U	815	149			213	Õ	778
22			86	V	704	150			214	Ö	778
23			87	W	926	151			215	×	606
24			88	X	704	152			216	Ø	778
25			89	Y	685	153			217	Ù	815
26			90	Z	667	154			218	Ú	815
27			91	[	333	155			219	Û	815
28			92	\	606	156			220	Ü	815
29			93	]	333	157			221	Ý	685
30			94	^	606	158			222	Þ	667
31			95	_	500	159			223	ß	556
32		278	96	`	204	160		278	224	à	574
33	!	333	97	a	574	161	¡	333	225	á	574
34	"	400	98	b	556	162	¢	556	226	â	574
35	#	556	99	c	444	163	£	556	227	ã	574
36	$	556	100	d	611	164	¤	556	228	ä	574
37	%	833	101	e	444	165	¥	556	229	å	574
38	&	852	102	f	333	166	¦	606	230	æ	722
39	’	204	103	g	537	167	§	500	231	ç	444
40	(	333	104	h	611	168	¨	333	232	è	444
41	)	333	105	i	333	169	©	747	233	é	444
42	*	500	106	j	315	170	ª	422	234	ê	444
43	+	606	107	k	556	171	«	426	235	ë	444
44	,	278	108	l	333	172	¬	606	236	ì	333
45	–	606	109	m	889	173	-	333	237	í	333
46	.	278	110	n	611	174	®	747	238	î	333
47	/	606	111	o	500	175	¯	333	239	ï	333
48	0	556	112	p	574	176	°	400	240	ð	500
49	1	556	113	q	556	177	±	606	241	ñ	611
50	2	556	114	r	444	178	²	333	242	ò	500
51	3	556	115	s	444	179	³	333	243	ó	500
52	4	556	116	t	352	180	´	333	244	ô	500
53	5	556	117	u	611	181	µ	611	245	õ	500
54	6	556	118	v	519	182	¶	650	246	ö	500
55	7	556	119	w	778	183	·	278	247	÷	606
56	8	556	120	x	500	184	¸	333	248	ø	500
57	9	556	121	y	500	185	¹	333	249	ù	611
58	:	278	122	z	463	186	º	372	250	ú	611
59	;	278	123	{	333	187	»	426	251	û	611
60	<	606	124	|	606	188	¼	834	252	ü	611
61	=	606	125	}	333	189	½	834	253	ý	500
62	>	606	126	~	606	190	¾	834	254	þ	574
63	?	444	127			191	¿	444	255	ÿ	500

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NewCenturySchlbk-Roman

CapHeight = 722

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	737	128			192	À	722
1			65	A	722	129			193	Á	722
2			66	B	722	130			194	Â	722
3			67	C	722	131			195	Ã	722
4			68	D	778	132			196	Ä	722
5			69	E	722	133			197	Å	722
6			70	F	667	134			198	Æ	1000
7			71	G	778	135			199	Ç	722
8			72	H	833	136			200	È	722
9			73	I	407	137			201	É	722
10			74	J	556	138			202	Ê	722
11			75	K	778	139			203	Ë	722
12			76	L	667	140			204	Ì	407
13			77	M	944	141			205	Í	407
14			78	N	815	142			206	Î	407
15			79	O	778	143			207	Ï	407
16			80	P	667	144			208	Ð	778
17			81	Q	778	145			209	Ñ	815
18			82	R	722	146			210	Ò	778
19			83	S	630	147			211	Ó	778
20			84	T	667	148			212	Ô	778
21			85	U	815	149			213	Õ	778
22			86	V	722	150			214	Ö	778
23			87	W	981	151			215	×	606
24			88	X	704	152			216	Ø	778
25			89	Y	704	153			217	Ù	815
26			90	Z	611	154			218	Ú	815
27			91	[	333	155			219	Û	815
28			92	\	606	156			220	Ü	815
29			93	]	333	157			221	Ý	704
30			94	^	606	158			222	Þ	667
31			95	_	500	159			223	ß	574
32		278	96	`	204	160		278	224	à	556
33	!	296	97	a	556	161	¡	296	225	á	556
34	"	389	98	b	556	162	¢	556	226	â	556
35	#	556	99	c	444	163	£	556	227	ã	556
36	$	556	100	d	574	164	¤	556	228	ä	556
37	%	833	101	e	500	165	¥	556	229	å	556
38	&	815	102	f	333	166	¦	606	230	æ	796
39	'	204	103	g	537	167	§	500	231	ç	444
40	(	333	104	h	611	168	¨	333	232	è	500
41	)	333	105	i	315	169	©	737	233	é	500
42	*	500	106	j	296	170	ª	334	234	ê	500
43	+	606	107	k	593	171	«	426	235	ë	500
44	,	278	108	l	315	172	¬	606	236	ì	315
45	–	606	109	m	889	173	-	333	237	í	315
46	.	278	110	n	611	174	®	737	238	î	315
47	/	278	111	o	500	175	¯	333	239	ï	315
48	0	556	112	p	574	176	°	400	240	ð	500
49	1	556	113	q	556	177	±	606	241	ñ	611
50	2	556	114	r	444	178	²	333	242	ò	500
51	3	556	115	s	463	179	³	333	243	ó	500
52	4	556	116	t	389	180	´	333	244	ô	500
53	5	556	117	u	611	181	µ	611	245	õ	500
54	6	556	118	v	537	182	¶	606	246	ö	500
55	7	556	119	w	778	183	·	278	247	÷	606
56	8	556	120	x	537	184	¸	333	248	ø	500
57	9	556	121	y	537	185	¹	333	249	ù	611
58	:	278	122	z	481	186	º	300	250	ú	611
59	;	278	123	{	333	187	»	426	251	û	611
60	<	606	124	|	606	188	¼	834	252	ü	611
61	=	606	125	}	333	189	½	834	253	ý	537
62	>	606	126	~	606	190	¾	834	254	þ	574
63	?	444	127			191	¿	444	255	ÿ	537

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Palatino-Bold

CapHeight = 681

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	747	128			192	À	778
1			65	A	778	129			193	Á	778
2			66	B	667	130			194	Â	778
3			67	C	722	131			195	Ã	778
4			68	D	833	132			196	Ä	778
5			69	E	611	133			197	Å	778
6			70	F	556	134			198	Æ	1000
7			71	G	833	135			199	Ç	722
8			72	H	833	136			200	È	611
9			73	I	389	137			201	É	611
10			74	J	389	138			202	Ê	611
11			75	K	778	139			203	Ë	611
12			76	L	611	140			204	Ì	389
13			77	M	1000	141			205	Í	389
14			78	N	833	142			206	Î	389
15			79	O	833	143			207	Ï	389
16			80	P	611	144			208	Ð	833
17			81	Q	833	145			209	Ñ	833
18			82	R	722	146			210	Ò	833
19			83	S	611	147			211	Ó	833
20			84	T	667	148			212	Ô	833
21			85	U	778	149			213	Õ	833
22			86	V	778	150			214	Ö	833
23			87	W	1000	151			215	×	606
24			88	X	667	152			216	Ø	833
25			89	Y	667	153			217	Ù	778
26			90	Z	667	154			218	Ú	778
27			91	[	333	155			219	Û	778
28			92	\	606	156			220	Ü	778
29			93	]	333	157			221	Ý	667
30			94	^	606	158			222	Þ	611
31			95	_	500	159			223	ß	611
32		250	96	`	278	160		250	224	à	500
33	!	278	97	a	500	161	¡	278	225	á	500
34	"	402	98	b	611	162	¢	500	226	â	500
35	#	500	99	c	444	163	£	500	227	ã	500
36	$	500	100	d	611	164	¤	500	228	ä	500
37	%	889	101	e	500	165	¥	500	229	å	500
38	&	833	102	f	389	166	¦	606	230	æ	778
39	'	278	103	g	556	167	§	500	231	ç	444
40	(	333	104	h	611	168	¨	333	232	è	500
41	)	333	105	i	333	169	©	747	233	é	500
42	*	444	106	j	333	170	ª	438	234	ê	500
43	+	606	107	k	611	171	«	500	235	ë	500
44	,	250	108	l	333	172	¬	606	236	ì	333
45	-	606	109	m	889	173	-	333	237	í	333
46	.	250	110	n	611	174	®	747	238	î	333
47	/	296	111	o	556	175	¯	333	239	ï	333
48	0	500	112	p	611	176	°	400	240	ð	556
49	1	500	113	q	611	177	±	606	241	ñ	611
50	2	500	114	r	389	178	²	300	242	ò	556
51	3	500	115	s	444	179	³	300	243	ó	556
52	4	500	116	t	333	180	´	333	244	ô	556
53	5	500	117	u	611	181	µ	611	245	õ	556
54	6	500	118	v	556	182	¶	641	246	ö	556
55	7	500	119	w	833	183	·	250	247	÷	606
56	8	500	120	x	500	184	¸	333	248	ø	556
57	9	500	121	y	556	185	¹	300	249	ù	611
58	:	250	122	z	500	186	º	488	250	ú	611
59	;	250	123	{	310	187	»	500	251	û	611
60	<	606	124	|	606	188	¼	750	252	ü	611
61	=	606	125	}	310	189	½	750	253	ý	556
62	>	606	126	~	606	190	¾	750	254	þ	611
63	?	444	127			191	¿	444	255	ÿ	556

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Palatino-BoldItalic

CapHeight = 681

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	833	128			192	À	722
1			65	A	722	129			193	Á	722
2			66	B	667	130			194	Â	722
3			67	C	685	131			195	Ã	722
4			68	D	778	132			196	Ä	722
5			69	E	611	133			197	Å	722
6			70	F	556	134			198	Æ	944
7			71	G	778	135			199	Ç	685
8			72	H	778	136			200	È	611
9			73	I	389	137			201	É	611
10			74	J	389	138			202	Ê	611
11			75	K	722	139			203	Ë	611
12			76	L	611	140			204	Ì	389
13			77	M	944	141			205	Í	389
14			78	N	778	142			206	Î	389
15			79	O	833	143			207	Ï	389
16			80	P	667	144			208	Ð	778
17			81	Q	833	145			209	Ñ	778
18			82	R	722	146			210	Ò	833
19			83	S	556	147			211	Ó	833
20			84	T	611	148			212	Ô	833
21			85	U	778	149			213	Õ	833
22			86	V	667	150			214	Ö	833
23			87	W	1000	151			215	×	606
24			88	X	722	152			216	Ø	833
25			89	Y	611	153			217	Ù	778
26			90	Z	667	154			218	Ú	778
27			91	[	333	155			219	Û	778
28			92	\	606	156			220	Ü	778
29			93	]	333	157			221	Ý	611
30			94	^	606	158			222	Þ	667
31			95	_	500	159			223	ß	556
32		250	96	`	278	160		250	224	à	556
33	!	333	97	a	556	161	¡	333	225	á	556
34	"	500	98	b	537	162	¢	500	226	â	556
35	#	500	99	c	444	163	£	500	227	ã	556
36	$	500	100	d	556	164	¤	500	228	ä	556
37	%	889	101	e	444	165	¥	500	229	å	556
38	&	833	102	f	333	166	¦	606	230	æ	738
39	'	278	103	g	500	167	§	556	231	ç	444
40	(	333	104	h	556	168	¨	333	232	è	444
41	)	333	105	i	333	169	©	747	233	é	444
42	*	444	106	j	333	170	ª	333	234	ê	444
43	+	606	107	k	556	171	«	500	235	ë	444
44	,	250	108	l	333	172	¬	606	236	ì	333
45	–	606	109	m	833	173	-	389	237	í	333
46	.	250	110	n	556	174	®	747	238	î	333
47	/	315	111	o	556	175	¯	333	239	ï	333
48	0	500	112	p	556	176	°	400	240	ð	556
49	1	500	113	q	537	177	±	606	241	ñ	556
50	2	500	114	r	389	178	²	300	242	ò	556
51	3	500	115	s	444	179	³	300	243	ó	556
52	4	500	116	t	389	180	´	333	244	ô	556
53	5	500	117	u	556	181	µ	556	245	õ	556
54	6	500	118	v	556	182	¶	556	246	ö	556
55	7	500	119	w	833	183	·	250	247	÷	606
56	8	500	120	x	500	184	¸	333	248	ø	556
57	9	500	121	y	556	185	¹	300	249	ù	556
58	:	250	122	z	500	186	º	333	250	ú	556
59	;	250	123	{	333	187	»	500	251	û	556
60	<	606	124	|	606	188	¼	750	252	ü	556
61	=	606	125	}	333	189	½	750	253	ý	556
62	>	606	126	~	606	190	¾	750	254	þ	556
63	?	444	127			191	¿	444	255	ÿ	556

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Palatino-Italic

CapHeight = 692

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	747	128			192	À	722
1			65	A	722	129			193	Á	722
2			66	B	611	130			194	Â	722
3			67	C	667	131			195	Ã	722
4			68	D	778	132			196	Ä	722
5			69	E	611	133			197	Å	722
6			70	F	556	134			198	Æ	941
7			71	G	722	135			199	Ç	667
8			72	H	778	136			200	È	611
9			73	I	333	137			201	É	611
10			74	J	333	138			202	Ê	611
11			75	K	667	139			203	Ë	611
12			76	L	556	140			204	Ì	333
13			77	M	944	141			205	Í	333
14			78	N	778	142			206	Î	333
15			79	O	778	143			207	Ï	333
16			80	P	611	144			208	Ð	778
17			81	Q	778	145			209	Ñ	778
18			82	R	667	146			210	Ò	778
19			83	S	556	147			211	Ó	778
20			84	T	611	148			212	Ô	778
21			85	U	778	149			213	Õ	778
22			86	V	722	150			214	Ö	778
23			87	W	944	151			215	×	606
24			88	X	722	152			216	Ø	778
25			89	Y	667	153			217	Ù	778
26			90	Z	667	154			218	Ú	778
27			91	[	333	155			219	Û	778
28			92	\	606	156			220	Ü	778
29			93	]	333	157			221	Ý	667
30			94	^	606	158			222	Þ	611
31			95	_	500	159			223	ß	500
32		250	96	`	278	160		250	224	à	444
33	!	333	97	a	444	161	¡	333	225	á	444
34	"	500	98	b	463	162	¢	500	226	â	444
35	#	500	99	c	407	163	£	500	227	ã	444
36	$	500	100	d	500	164	¤	500	228	ä	444
37	%	889	101	e	389	165	¥	500	229	å	444
38	&	778	102	f	278	166	¦	606	230	æ	638
39	'	278	103	g	500	167	§	500	231	ç	407
40	(	333	104	h	500	168	¨	333	232	è	389
41	)	333	105	i	278	169	©	747	233	é	389
42	*	389	106	j	278	170	ª	333	234	ê	389
43	+	606	107	k	444	171	«	500	235	ë	389
44	,	250	108	l	278	172	¬	606	236	ì	278
45	–	606	109	m	778	173	-	333	237	í	278
46	.	250	110	n	556	174	®	747	238	î	278
47	/	296	111	o	444	175	¯	333	239	ï	278
48	0	500	112	p	500	176	°	400	240	ð	444
49	1	500	113	q	463	177	±	606	241	ñ	556
50	2	500	114	r	389	178	²	300	242	ò	444
51	3	500	115	s	389	179	³	300	243	ó	444
52	4	500	116	t	333	180	´	333	244	ô	444
53	5	500	117	u	556	181	µ	556	245	õ	444
54	6	500	118	v	500	182	¶	500	246	ö	444
55	7	500	119	w	722	183	·	250	247	÷	606
56	8	500	120	x	500	184	¸	333	248	ø	444
57	9	500	121	y	500	185	¹	300	249	ù	556
58	:	250	122	z	444	186	º	333	250	ú	556
59	;	250	123	{	333	187	»	500	251	û	556
60	<	606	124	|	606	188	¼	750	252	ü	556
61	=	606	125	}	333	189	½	750	253	ý	500
62	>	606	126	~	606	190	¾	750	254	þ	500
63	?	500	127			191	¿	500	255	ÿ	500

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Palatino-Roman

CapHeight = 692

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	747	128			192	À	778
1			65	A	778	129			193	Á	778
2			66	B	611	130			194	Â	778
3			67	C	709	131			195	Ã	778
4			68	D	774	132			196	Ä	778
5			69	E	611	133			197	Å	778
6			70	F	556	134			198	Æ	944
7			71	G	763	135			199	Ç	709
8			72	H	832	136			200	È	611
9			73	I	337	137			201	É	611
10			74	J	333	138			202	Ê	611
11			75	K	726	139			203	Ë	611
12			76	L	611	140			204	Ì	337
13			77	M	946	141			205	Í	337
14			78	N	831	142			206	Î	337
15			79	O	786	143			207	Ï	337
16			80	P	604	144			208	Ð	774
17			81	Q	786	145			209	Ñ	831
18			82	R	668	146			210	Ò	786
19			83	S	525	147			211	Ó	786
20			84	T	613	148			212	Ô	786
21			85	U	778	149			213	Õ	786
22			86	V	722	150			214	Ö	786
23			87	W	1000	151			215	×	606
24			88	X	667	152			216	Ø	833
25			89	Y	667	153			217	Ù	778
26			90	Z	667	154			218	Ú	778
27			91	[	333	155			219	Û	778
28			92	\	606	156			220	Ü	778
29			93	]	333	157			221	Ý	667
30			94	^	606	158			222	Þ	604
31			95	_	500	159			223	ß	556
32		250	96	`	278	160		250	224	à	500
33	!	278	97	a	500	161	¡	278	225	á	500
34	"	371	98	b	553	162	¢	500	226	â	500
35	#	500	99	c	444	163	£	500	227	ã	500
36	$	500	100	d	611	164	¤	500	228	ä	500
37	%	840	101	e	479	165	¥	500	229	å	500
38	&	778	102	f	333	166	¦	606	230	æ	758
39	'	278	103	g	556	167	§	500	231	ç	444
40	(	333	104	h	582	168	¨	333	232	è	479
41	)	333	105	i	291	169	©	747	233	é	479
42	*	389	106	j	234	170	ª	333	234	ê	479
43	+	606	107	k	556	171	«	500	235	ë	479
44	,	250	108	l	291	172	¬	606	236	ì	287
45	–	606	109	m	883	173	-	333	237	í	287
46	.	250	110	n	582	174	®	747	238	î	287
47	/	606	111	o	546	175	¯	333	239	ï	287
48	0	500	112	p	601	176	°	400	240	ð	546
49	1	500	113	q	560	177	±	606	241	ñ	582
50	2	500	114	r	395	178	²	300	242	ò	546
51	3	500	115	s	424	179	³	300	243	ó	546
52	4	500	116	t	326	180	´	333	244	ô	546
53	5	500	117	u	603	181	µ	603	245	õ	546
54	6	500	118	v	565	182	¶	628	246	ö	546
55	7	500	119	w	834	183	·	250	247	÷	606
56	8	500	120	x	516	184	¸	333	248	ø	556
57	9	500	121	y	556	185	¹	300	249	ù	603
58	:	250	122	z	500	186	º	333	250	ú	603
59	;	250	123	{	333	187	»	500	251	û	603
60	<	606	124	|	606	188	¼	750	252	ü	603
61	=	606	125	}	333	189	½	750	253	ý	556
62	>	606	126	~	606	190	¾	750	254	þ	601
63	?	444	127			191	¿	444	255	ÿ	556

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ZapfChancery-MediumItalic

CapHeight = 610

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	@	700	128			192	À	620
1			65	A	620	129			193	Á	620
2			66	B	600	130			194	Â	620
3			67	C	520	131			195	Ã	620
4			68	D	700	132			196	Ä	620
5			69	E	620	133			197	Å	620
6			70	F	580	134			198	Æ	740
7			71	G	620	135			199	Ç	520
8			72	H	680	136			200	È	620
9			73	I	380	137			201	É	620
10			74	J	400	138			202	Ê	620
11			75	K	660	139			203	Ë	620
12			76	L	580	140			204	Ì	380
13			77	M	840	141			205	Í	380
14			78	N	700	142			206	Î	380
15			79	O	600	143			207	Ï	380
16			80	P	540	144			208	Ð	700
17			81	Q	600	145			209	Ñ	700
18			82	R	600	146			210	Ò	600
19			83	S	460	147			211	Ó	600
20			84	T	500	148			212	Ô	600
21			85	U	740	149			213	Õ	600
22			86	V	640	150			214	Ö	600
23			87	W	880	151			215	×	520
24			88	X	560	152			216	Ø	660
25			89	Y	560	153			217	Ù	740
26			90	Z	620	154			218	Ú	740
27			91	[	240	155			219	Û	740
28			92	\	480	156			220	Ü	740
29			93	]	320	157			221	Ý	560
30			94	^	520	158			222	Þ	540
31			95	_	500	159			223	ß	420
32		220	96	`	240	160		220	224	à	420
33	!	280	97	a	420	161	¡	280	225	á	420
34	"	220	98	b	420	162	¢	440	226	â	420
35	#	440	99	c	340	163	£	440	227	ã	420
36	$	440	100	d	440	164	¤	440	228	ä	420
37	%	680	101	e	340	165	¥	440	229	å	420
38	&	780	102	f	320	166	¦	520	230	æ	540
39	'	240	103	g	400	167	§	420	231	ç	340
40	(	260	104	h	440	168	¨	360	232	è	340
41	)	220	105	i	240	169	©	740	233	é	340
42	*	420	106	j	220	170	ª	260	234	ê	340
43	+	520	107	k	440	171	«	340	235	ë	340
44	,	220	108	l	240	172	¬	520	236	ì	240
45	-	520	109	m	620	173	-	280	237	í	240
46	.	220	110	n	460	174	®	740	238	î	240
47	/	340	111	o	400	175	¯	440	239	ï	240
48	0	440	112	p	440	176	°	400	240	ð	400
49	1	440	113	q	400	177	±	520	241	ñ	460
50	2	440	114	r	300	178	²	264	242	ò	400
51	3	440	115	s	320	179	³	264	243	ó	400
52	4	440	116	t	320	180	´	300	244	ô	400
53	5	440	117	u	460	181	µ	460	245	õ	400
54	6	440	118	v	440	182	¶	500	246	ö	400
55	7	440	119	w	680	183	·	220	247	÷	520
56	8	440	120	x	420	184	¸	300	248	ø	440
57	9	440	121	y	400	185	¹	264	249	ù	460
58	:	260	122	z	440	186	º	260	250	ú	460
59	;	240	123	{	240	187	»	380	251	û	460
60	<	520	124	|	520	188	¼	660	252	ü	460
61	=	520	125	}	240	189	½	660	253	ý	400
62	>	520	126	~	520	190	¾	660	254	þ	440
63	?	380	127			191	¿	400	255	ÿ	400

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ZapfDingbats

CapHeight = 692

Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width	Char Number	Standard Char	Char Width
0			64	✠	577	128			192	①	788
1			65	✡	692	129			193	②	788
2			66	☛	786	130			194	③	788
3			67	☞	788	131			195	④	788
4			68	✌	788	132			196	⑤	788
5			69	✍	790	133			197	⑥	788
6			70	✎	793	134			198	⑦	788
7			71	✏	794	135			199	⑧	788
8			72	✐	816	136			200	⑨	788
9			73	✑	823	137			201	⑩	788
10			74	✒	789	138			202	❶	788
11			75	✓	841	139			203	❷	788
12			76	✔	823	140			204	❸	788
13			77	✕	833	141			205	❹	788
14			78	✖	816	142			206	❺	788
15			79	✗	831	143			207	❻	788
16			80	✘	923	144			208	❼	788
17			81	✙	744	145			209	❽	788
18			82	✚	723	146			210	❾	788
19			83	✛	749	147			211	❿	788
20			84	✜	790	148			212	➔	894
21			85	✝	792	149			213	→	838
22			86	✞	695	150			214	↔	1016
23			87	✟	776	151			215	↕	458
24			88	✠	768	152			216	↘	748
25			89	✡	792	153			217	➙	924
26			90	✢	759	154			218	➚	748
27			91	✣	707	155			219	➛	918
28			92	✤	708	156			220	➜	927
29			93	✥	682	157			221	➝	928
30			94	✦	701	158			222	➞	928
31			95	✧	826	159			223	➟	834
32		278	96	★	815	160			224	➠	873
33	✁	974	97	✩	789	161	❡	732	225	➡	828
34	✂	961	98	✪	789	162	❢	544	226	➢	924
35	✃	974	99	✫	707	163	❣	544	227	➢	924
36	✄	980	100	✬	687	164	❤	910	228	➤	917
37	☎	719	101	✭	696	165	❥	667	229	➥	930
38	✆	789	102	✮	689	166	❦	760	230	➦	931
39	✇	790	103	✯	786	167	❧	760	231	➧	463
40	✈	791	104	✰	787	168	♣	776	232	➨	883
41	✉	690	105	✱	713	169	♦	595	233	➩	836
42	☛	960	106	✲	791	170	♥	694	234	➪	836
43	☞	939	107	✳	785	171	♠	626	235	➫	867
44	✌	549	108	✴	791	172	①	788	236	➬	867
45	✍	855	109	✵	873	173	②	788	237	➭	696
46	✎	911	110	✶	761	174	③	788	238	➮	696
47	✏	933	111	✷	762	175	④	788	239	➯	874
48	✐	911	112	✸	762	176	⑤	788	240		
49	✑	945	113	✹	759	177	⑥	788	241	➱	874
50	✒	974	114	✺	759	178	⑦	788	242	➲	760
51	✓	755	115	▲	892	179	⑧	788	243	➳	946
52	✔	846	116	▼	892	180	⑨	788	244	➴	771
53	✕	762	117	◆	788	181	⑩	788	245	➵	865
54	✖	761	118	❖	784	182	❶	788	246	➶	771
55	✗	571	119	◗	438	183	❷	788	247	➷	888
56	✘	677	120	❙	138	184	❸	788	248	➸	967
57	✙	763	121	❚	277	185	❹	788	249	➹	888
58	✚	760	122	❯	415	186	❺	788	250	➺	831
59	✛	759	123	❮	392	187	❻	788	251	➻	873
60	✜	754	124	❱	392	188	❼	788	252	➼	927
61	✝	494	125	❰	668	189	❽	788	253	➽	970
62	✞	552	126	❯	668	190	❾	788	254	➾	918
63	✟	537	127			191	❿	788	255		

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