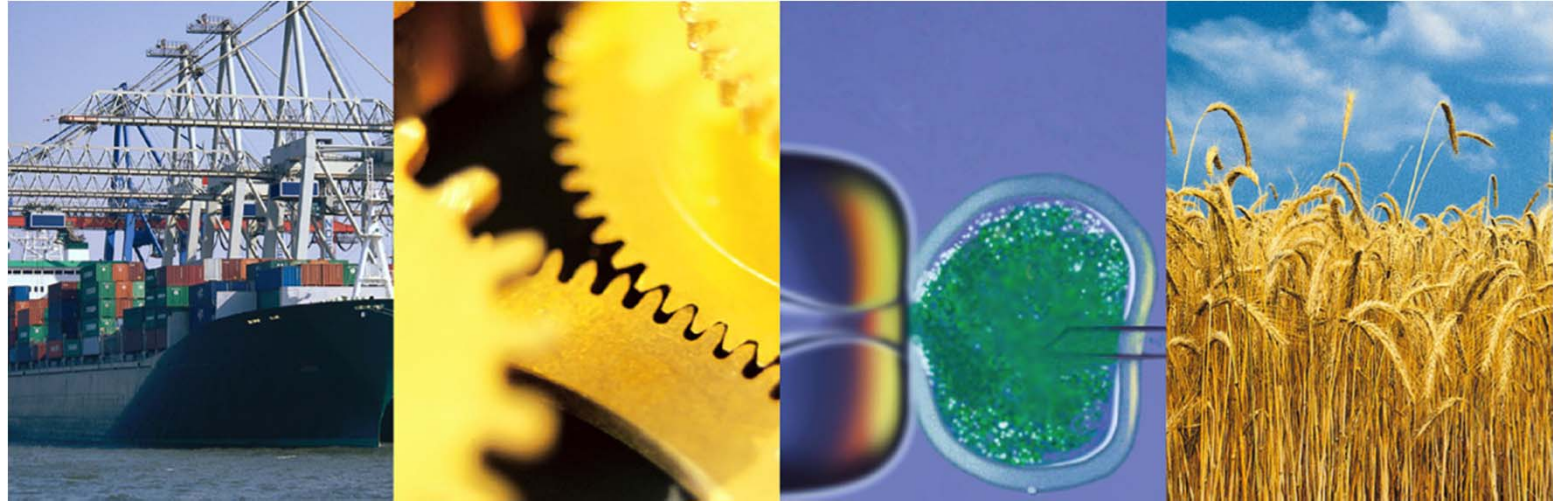


Graphics formats and tools



Stand DRG

The different types of graphics format

Graphics formats can be classified
broadly in 3 different groups

- Vector

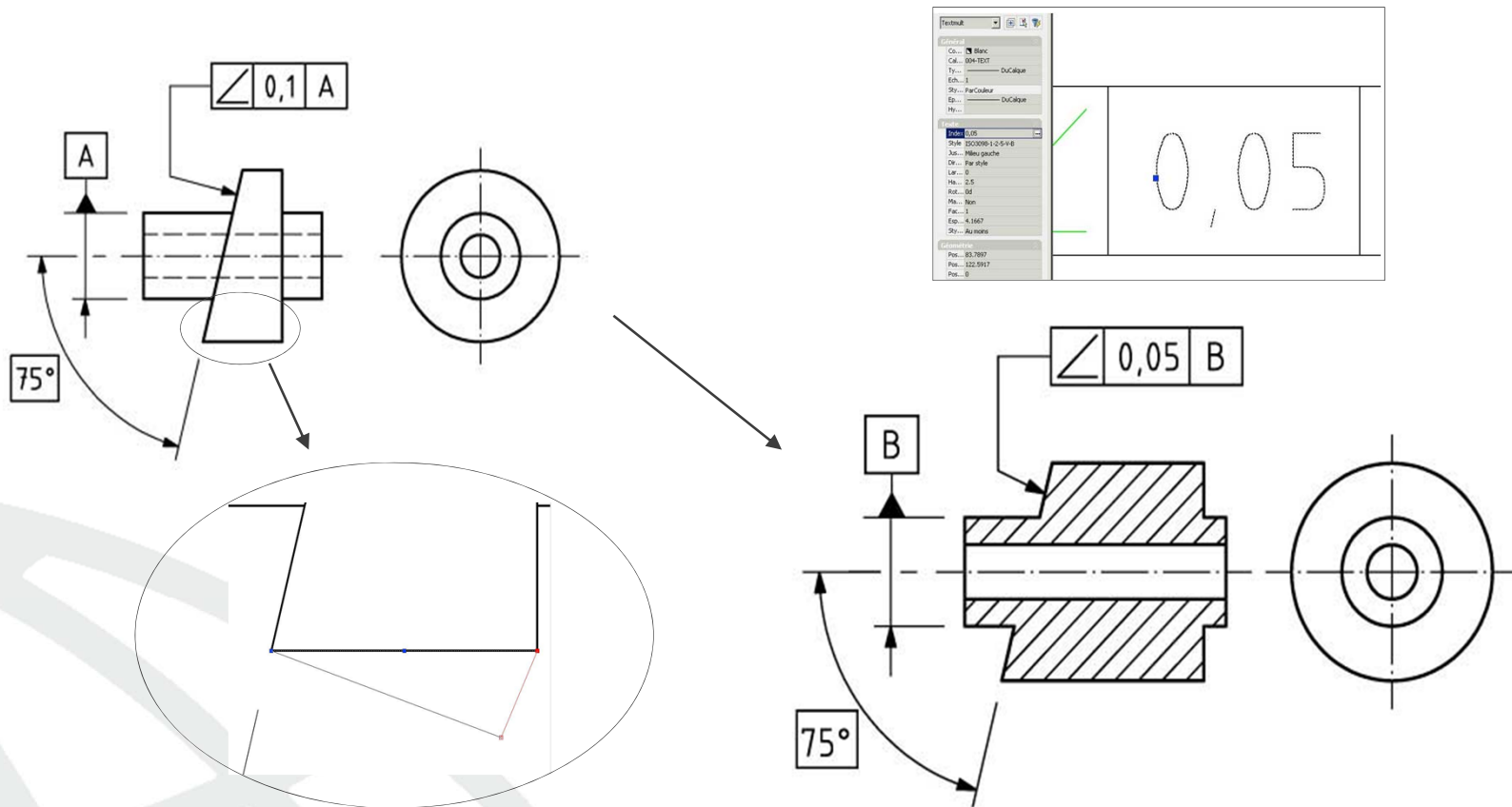
- Raster (or bitmap)

- Page description language (PDL)



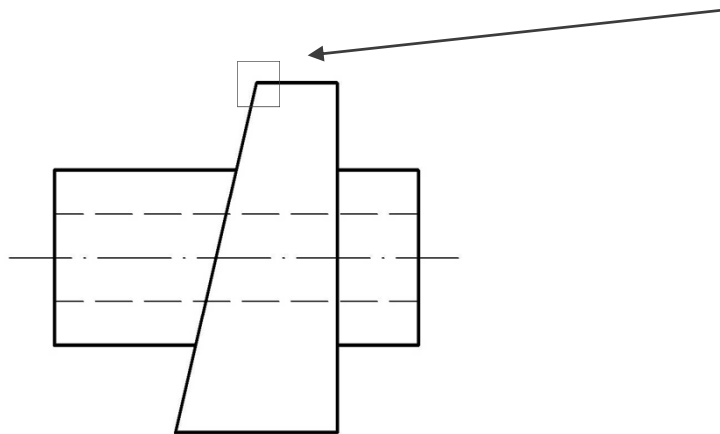
Vector formats

In a vector format (revisable)
a line is defined by 2 points, the text can be edited



Raster (bitmap) format

A raster (bitmap) format is like a photograph; the number of dots/cm defines the quality of the drawing



Page description language (PDL) formats

A page description language is a programming language that describes the appearance of a printed page at a higher level than an actual output bitmap

Adobe's PostScript (.ps), Encapsulated PostScript (.eps) and Portable Document Format (.pdf) are some of the best known page description languages

Encapsulated PostScript (.eps) is commonly used for graphics

It can contain both unstructured vector information as well as raster (bitmap) data

Since it comprises a mixture of data, its quality and usability are variable

Background

Since the invention of computing, or more precisely since the creation of computer-assisted drawing (CAD), two main professions have evolved

- Desktop publishing (DTP)
developed principally on Macintosh

- Computer-assisted drawing or design (CAD)
developed principally on IBM (International Business Machines)



Use of DTP applications

Used greatly in the fields of marketing, journalism and industrial design, DTP applications fulfil the needs of various professions



- from sketches and mock-ups to fashion design
- interior design
- coachwork (body work) design
- web page design
- etc.



International
Organization for
Standardization



Principal DTP applications

DTP applications are provided by three major market players

- Adobe Illustrator
- Corel Draw
- Macromedia Freehand

Raster applications are mainly

- Corel Painter (oriented towards painting)
- Corel Photopaint

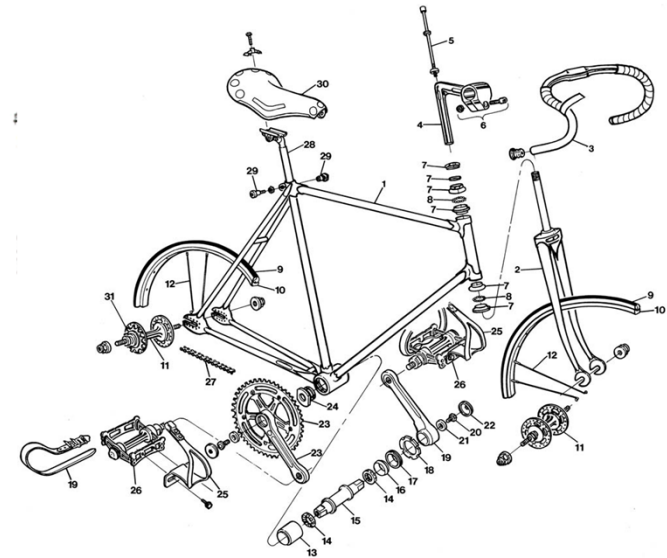
The two main applications that work with both raster and vector formats are

- Adobe Photoshop
- Adobe Fireworks

Use of CAD applications

The setup of technical engineering systems, and their interactions and possible incompatibilities, all belong to the knowledge domain of the engineer. CAD applications allow the design of complex systems that surpass human ability in the fields of

- mechanical engineering
- building
- electronic engineering
- all types of graphical representation (instructions for assembly and use)



DTP applications may also be used alongside engineering applications (e.g. for the creation of documents).

Principal CAD applications

Each engineering field has specialized software with functionalities that are optimized for its needs

The principal mechanical engineering applications

- Pro-Engineer
- Catia
- Inventor

The principal building/architectural applications

- ArchiCAD
- AutoCAD
- Allplan

The principal electronic engineering applications

- Altium Designer
- Eagle
- Kicad



and therefore it is necessary to choose amongst the multitude of applications available in the world

Such choices were made by the ITSIG-GRAPH group (AFNOR , BSI, DIN, *NEN*, *UNI*), TC 10 and TC 213 on the basis of the functionalities and ease of exchange of each application and of the types of drawings found in standards



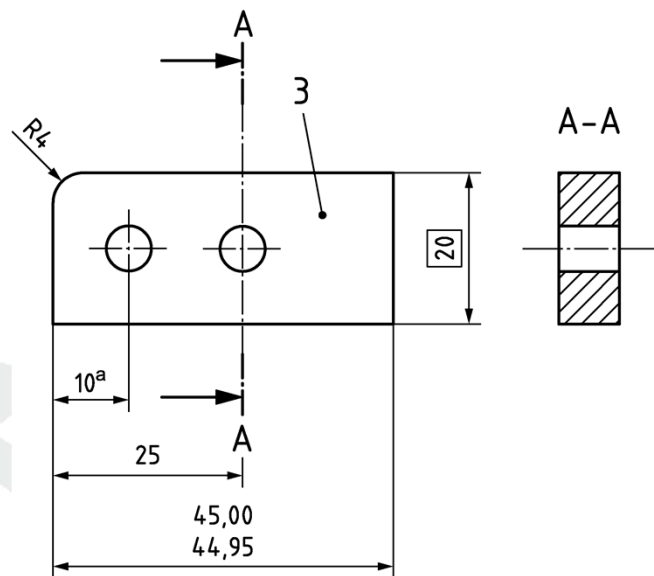
**A precise classification
of the different types of
graphic thus became necessary**



Classification of the different types of ISO graphic

Technical drawing

Itsig-Graph definition: technical information, given on an information carrier, graphically presented in accordance with the *published* rules of ISO/TC 10 and ISO/TC 213



Permissible extensions:

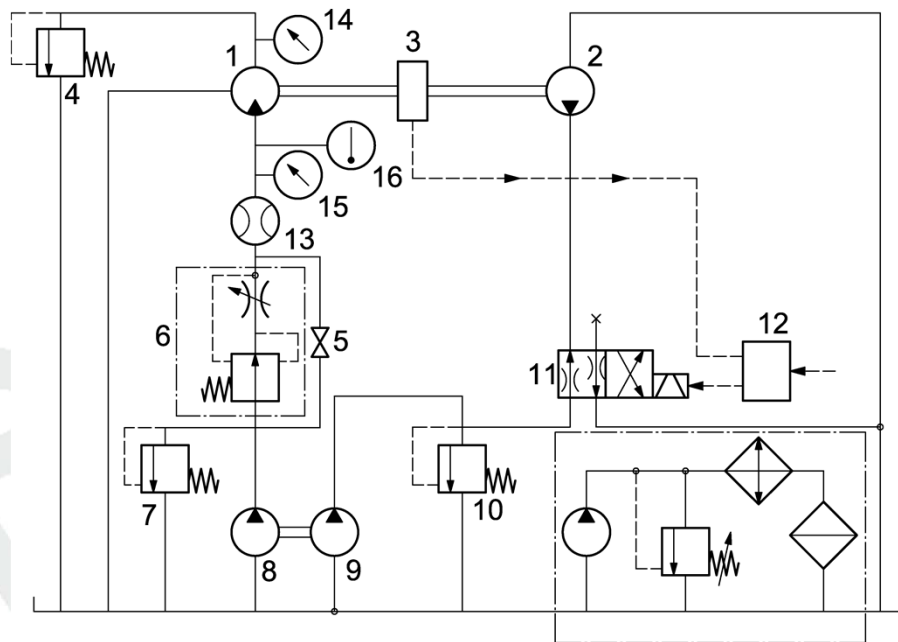
- .dwg/ .dxf (AutoCAD)
- .ai (Illustrator)
- .eps (vectorized)

Note: If dimensioning is not in conformity with ISO 129-1, technical drawings are corrected using AutoCAD.

Classification of the different types of ISO graphic

Diagram

Itsig-Graph definition: drawing in which graphical symbols are used to indicate the function of the components of a system and their relationships



Permissible extensions:

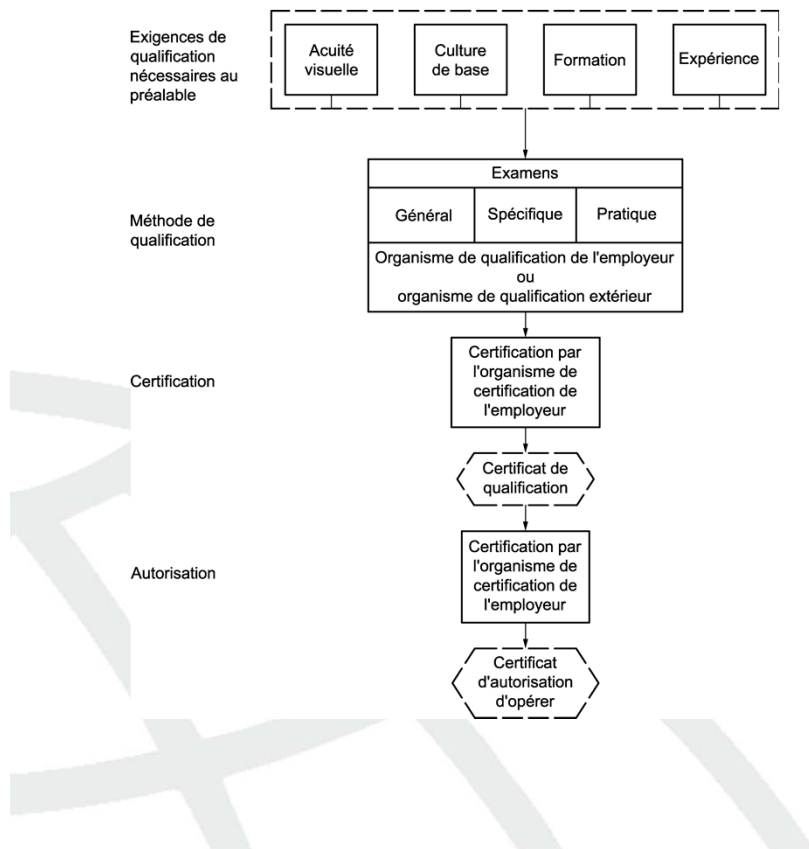
- .dwg/.dxf (AutoCAD)
- .ai (Illustrator)
- .eps (vectorized)

Note: If dimensioning is not in conformity with ISO 129-1, diagrams are corrected using AutoCAD.

Classification of the different types of ISO graphic

Chart

Itsig-Graph definition: drawing in which graphical symbols are used to indicate the function of the components of a process or organizational structure and their relationships



Permissible extensions:

- .dwg/.dxf (AutoCAD)
- .ai (Illustrator)
- .eps (vectorized)
- .vsd (Microsoft Visio)
- .ppt (Microsoft PowerPoint)

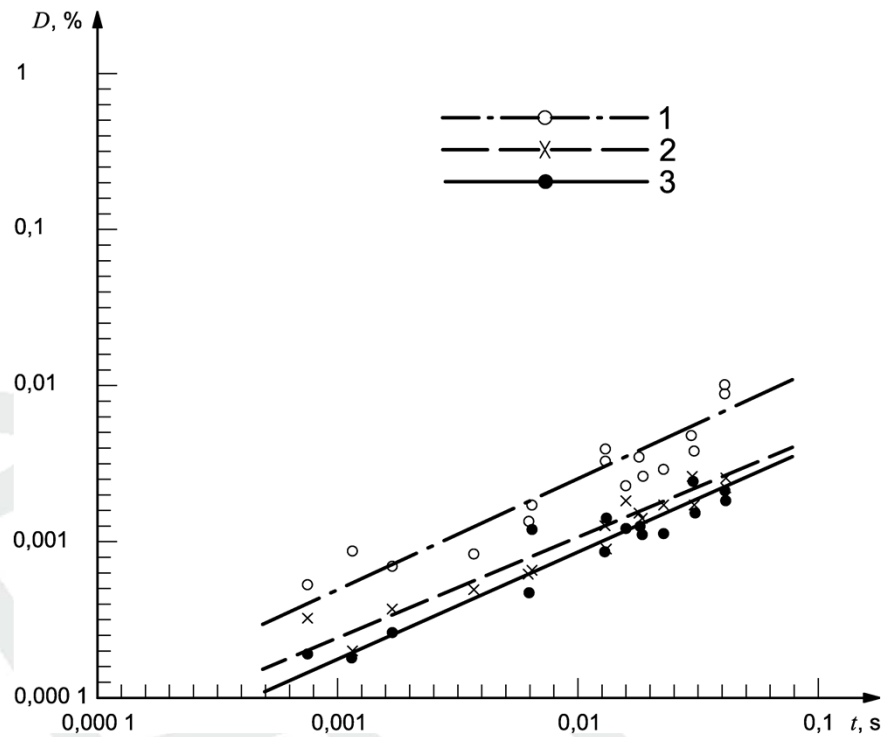
Under discussion:

- .odg (Open Office)
- .doc (Microsoft Word vectorized)

Classification of the different types of ISO graphic

Graph

Itsig-Graph definition: graphical presentation, usually within a coordinate system, expressing the relationship between two or more variable quantities



Permissible extensions:

- .dwg/.dxf (AutoCAD)
- .ai (Illustrator)
- .eps (vectorized)
- .xls (Microsoft Excel)

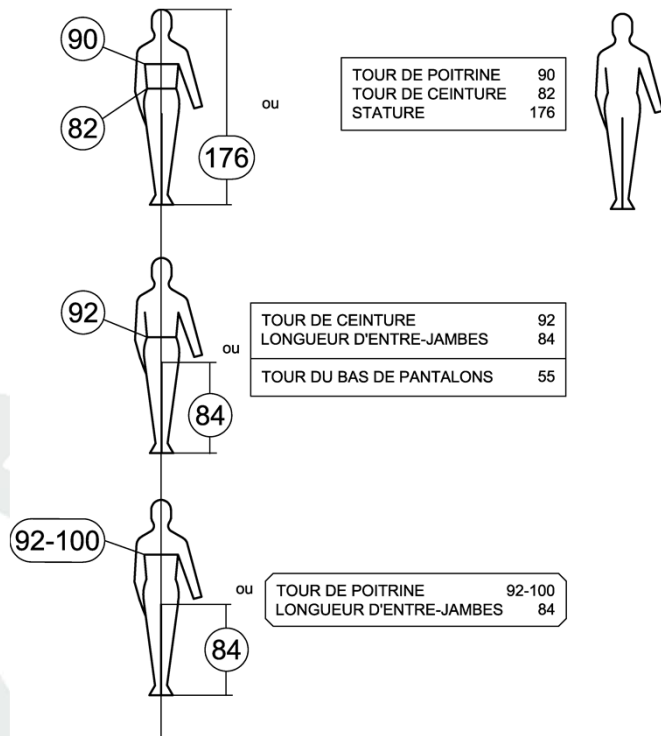
Under discussion:

- .ods (Open Office)

Classification of the different types of ISO graphic

Illustration

Itsig-Graph definition: drawing which illustrates an element of the related text but which is not a technical drawing, a diagram, a chart, a graph, a photograph or a graphical symbol



Permissible extensions if the illustration contains text:

- .dwg/.dxf (AutoCAD)
- .ai (Illustrator)
- .eps (vectorized)
- .vsd (Microsoft Visio)
- .ppt (Microsoft PowerPoint)

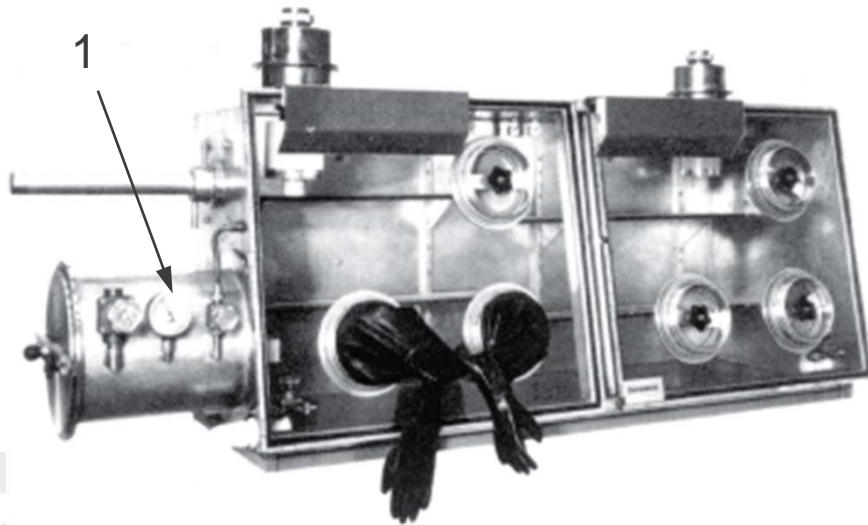
Additional permissible extensions if the illustration does not contain text:

- .tif
- .jpeg
- .gif

Classification of the different types of ISO graphic

Photograph

Itsig-Graph definition: image, especially a positive print, recorded by a camera and reproduced on a photosensitive surface



Permissible extensions if the photograph contains text:

- .ai (Illustrator)^a
- .eps (with editable text)
- .psd (Photoshop)^a

^a With a layer containing editable text

Additional permissible extensions if the illustration does not contain text:

- .tif
- .jpeg
- .gif

Classification of the different types of ISO graphic

Graphical symbol

Itsig-Graph definition: visually perceptible figure with a particular meaning used to transmit information independently of language



Permissible extensions if the symbol is black and white:

- .dwg/.dxf (AutoCAD)
- .ai (Illustrator)
- .eps (vectorized)

Permissible extensions if the symbol is colour:

- .ai (Illustrator)
- .eps (vectorized)

Conclusion

For a vectorized file, DRG works with AutoCAD or Illustrator and makes available the following formats:

- AutoCAD (.dwg) or Illustrator (.ai)
- Encapsulated PostScript (.eps)
- Tagged Image File (.tif)

For a raster file, DRG works with Photoshop and makes available the following formats :

- Encapsulated PostScript (.eps)
- Tagged Image File (.tif)

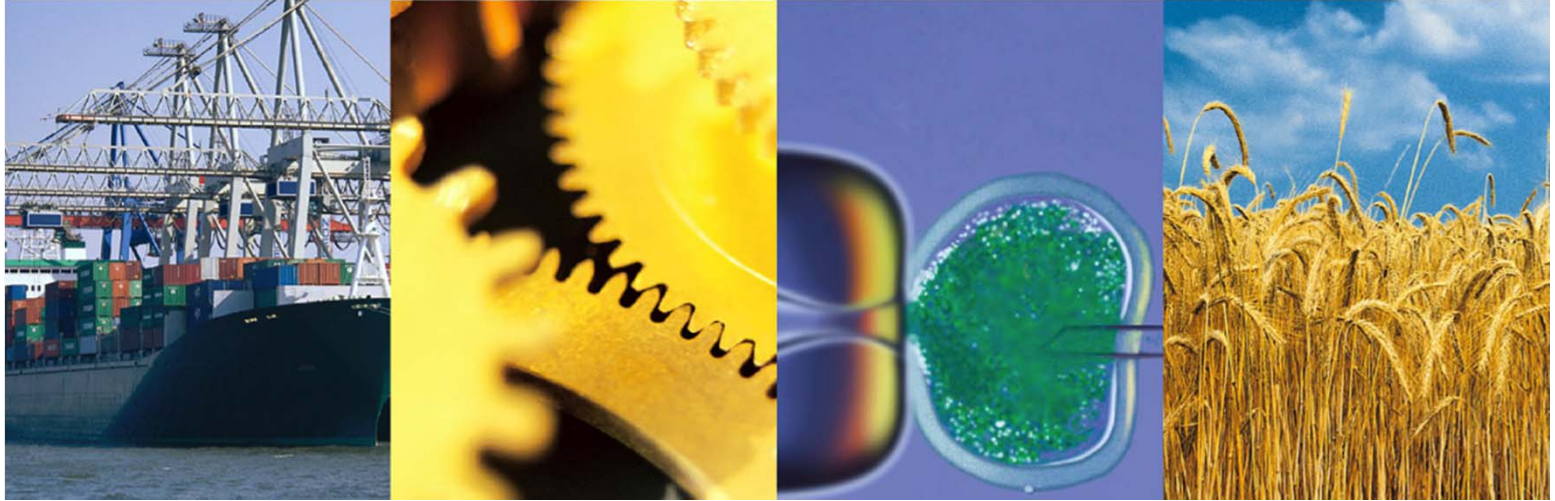
For a PDL file, DRG works with Illustrator or AutoCAD and makes available the following formats:

- AutoCAD (.dwg) or Illustrator (.ai)
- Encapsulated PostScript (.eps)
- Tagged Image File (.tif)

| Term | Permissible extensions | ISOCS treatment Extension: Application |
|-------------------|---|--|
| technical drawing | .dwg or DXF (AutoCAD), .ai (Illustrator), .eps (vectorized) Note: if dimensioning is not in accordance with ISO 129-1, technical drawings are corrected using AutoCAD. | .dwg or dxf: AutoCAD .ai: Illustrator .eps: AutoCAD or Illustrator |
| diagram | .dwg or DXF (Autocad), .ai (Illustrator), .eps (vectorised) Note: if dimensioning is not in accordance with ISO 129-1, diagrams are corrected using AutoCAD. | .dwg or dxf, .eps: AutoCAD .ai: Illustrator |
| chart | .dwg or DXF (AutoCAD), .ai (Illustrator), .eps (vectorized), .vsd (Visio), .ppt (Power point) To be discussed and agreed: .odg (Open Office), .doc (Word vectorized) | .dwg or dxf: AutoCAD .ai, .odg, .doc, .ppt: Illustrator .eps, .vsd: Autocad or Illustrator |
| graph | .xls (Excel), .dwg or DXF (Autocad), .ai (Illustrator), .eps (vectorized) To be discussed and agreed: .ods (Open Office) | .xls, .eps: AutoCAD or Illustrator .dwg or dxf : AutoCAD .ai: Illustrator |
| illustration | If illustration contains text: .dwg or DXF (AutoCAD), .ai (Illustrator), .eps (vectorized), .vsd (Visio), .ppt (Power point) After discussion and agreement: .odg (Open Office), .doc (Word vectorized) If illustration doesn't contain text: .dwg or DXF (AutoCAD), .ai (Illustrator), .eps (vectorized), .vsd (Visio), .ppt (PowerPoint), .tif , .jpeg Under discussion: .odg (Open Office), .doc (Word vectorized), .gif | .dwg or dxf, .vsd: AutoCAD .ai, .eps, .odg, .doc: Illustrator .dwg or dxf, .vsd: AutoCAD .ai, .eps, .odg, .doc, .tif, .jpeg, .gif: Illustrator or Photoshop |
| photograph | If photograph contains text: .ai (Illustrator), .eps (with editable text), .tif (with layer containing text), .psd (Photoshop with 1 layer containing text) Under discussion: .odg (Open Office), .doc (with editable text) If illustration doesn't contain text: .ai , .tif , .eps , .jpeg , .psd | .ai, .eps: Illustrator .tif, .psd, jpeg: Photoshop .odg, .doc: Illustrator or Photoshop on case by case |
| graphical symbol | If symbol is black and white: .dwg or DXF (AutoCAD) .ai (Illustrator), .eps (vectorized) Note: For symbols of TC10: .dwg or DXF (AutoCAD) For safety signs (with colour): .ai (Illustrator), .eps with CMYK colours | .dwg or dxf : AutoCAD .ai: Illustrator .eps: Illustrator (AutoCAD for symbols TC10) |

**One address:
drawings@iso.org**





Thank you

