Data formats

In the field of graphic data processing (CAD / CAM) there are various data formats. To a proprietary data of different software products that can only be processed internally, to other formats that serve to exchange between different systems. The proprietary data is usually not disclosed. Data formats for exchange have either been defined by manufacturers (DXF = Data Exchange Format of Autodesk) or defined by commissions (VDAFS = Association of German Automobile Manufacturers Areas Interface).

This data can be available as ASCII data, that is: readable or as binary data (= unreadable). Since binary data is much more compact and thus faster to process, this data format is in the foreground. The data type is usually recognizable by the file extension (test.dxf, teil.stp, Form.stl)!

Overview of the exchange data formats:

Format	Type	type	elements	Applications
DXF	Ascii	simple 2D data	lines, circles, splines ´	milling, laser cutting,
IGES Binary	3D data	edges, straight surfaces	CAD drawings	
VDAFS	Binary	Areas	Simple Area Data	Automotive industry
STEP	binary	freeform surfaces and volumes	surfaces, volumes, freeform surfaces	CAD / CAM data exchange
STL	Binary / ASCII	Conversion of outer surfaces into triangles	Any outer surface as triangles	3D printing, stereolithography, simulations
PDF	Binary	Graphic 3d illustration d	image format	documentation

The most commonly used data formats are:

• DXF for the exchange of 2D geometry data between CAD and machine control or graphic processing machine.

• STEP for the exchange between 3D CAD / CAM systems.

• STL transfer of 3D data to 3D printing programs, simulation programs, FEM, Mold Flow, etc

Task:

Determine which data formats your CAD / CAM system can process or create and assign them to the table above. Use the functions "open file" and "save as"!

Examine the data transfer between the programs you are using and document the data flow!

All Solid Edge documents (...) (*.par;*.psm;*.asm;*.dft;*.pwd)
Assembly documents (*.asm)
Top Level Assembly documents (*.asm)
Draft documents (*.dft)
Part documents (*.par)
Sheet Metal documents (*.psm)
Weldment documents (*.pwd)
Parasolid documents (*.x_b;*.x_t)
JT documents (*.jt)
NX documents (*.prt)
ACIS documents (*.sat)
AutoCAD© documents (*.dwg)
AutoCAD© documents (*.dxf)
CATIA© V4 documents (*.model)
CATIA© V5 Assembly documents (*.catproduct)
CATIA© V5 Part documents (*.catpart)
IFC documents (*.IFC)
IGES documents (*.iges;*.igs)
Inventor© Assembly documents (*.iam)
Inventor© Part documents (*.ipt)
Pro/ENGINEER© Assembly documents (*.asm.*)
Pro/ENGINEER© Part documents (*.prt.*)
SDRC Package documents (*.xpk;*.plmxpk)
SolidWorks© Assembly documents (*.sldasm)
SolidWorks© Part documents (*.sldprt)
STEP documents (*.step;*.stp)
STL documents (*.stl)
XML documents (*.plmxml)
All documents (*.*)