

***WinTool* 3D Shape Generator**

Version 2.2

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Summary

Job

The Shape Generator creates DXF or GEO files from assemblies, defined within *WinTool*. The functionality is used by interface modules as well as by the user, to check his entries in the data fields of new components.

Requirements

This software requires *WinTool* Professional.

Tool types supported

Holders, extensions, drills and mills are analyzed and the accurate shape is created.

Installation

After installation of any module using the Shape Generator, the file *WTxTshape.exe* will be found in the modules installation directory. To use the Shape Generator out of *WinTool*, copy the files *wtxtshape.exe* from there to the *WinTool* software folder. Please check the modules version before overwriting existing files.

How to run

Out of *WinTool*

- Use export function on assembly window and select "shape" in selection box.

Out of any software or command line

The Shape-Generator is called as "`<path>WTxTShape.exe /T nnnn /P ppppp`" where

- `<path>` = Path to where the *WTxTShape.exe* is installed
- `nnnn` = Tool ID-No. used in the *WinTool* database
- `ppppp` = Path to where the export should be written

or "`<path>WTxTShape.exe /L vvvv /P ppppp`" where

- `vvvv` = Tool-List ID used in the *WinTool* database

Additional Commands

- `/GEO` = Creates GEO-Format instead of DXF Format
- `/Prefix` = Prefix for output file name (optional)

Configuration

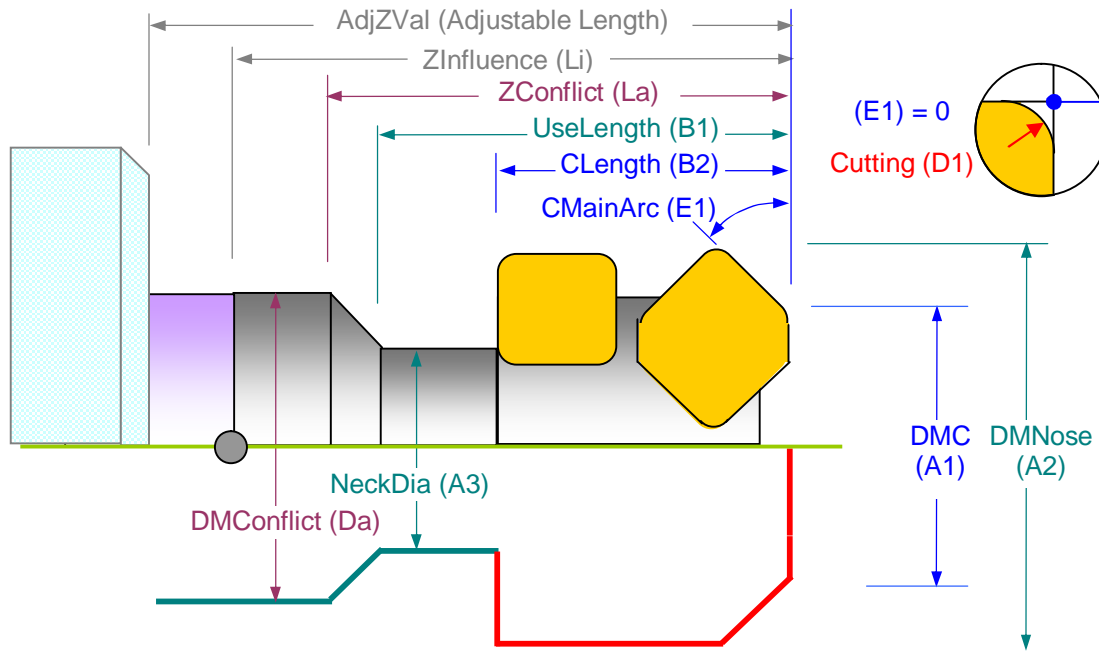
If the module is called out of *WinTool*, the following settings are used:

- *WinTool* Data-Exchange-Path
- To automatically start a software displaying the generated DXF file, create a batch file "vec.bat" in the *WinTool* software folder. It will be started after the dxf file will be created. The dxf filename is transferred to the batch file as parameter %1%.

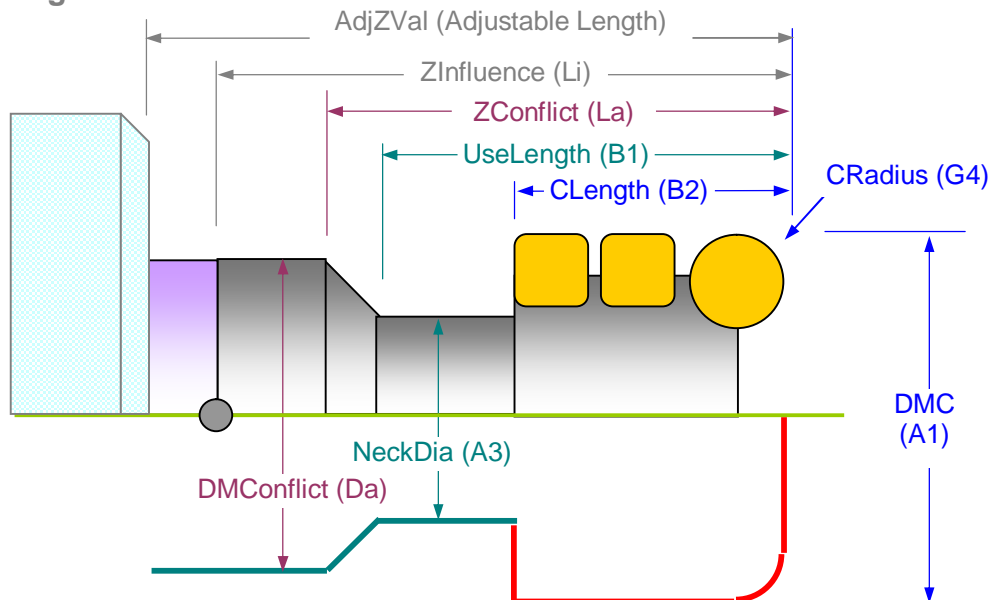
Geometry Types

1 - FSJ: End Mill tools with inserts

Angle $E1 \leq 0$



Angle $E1 = 0$

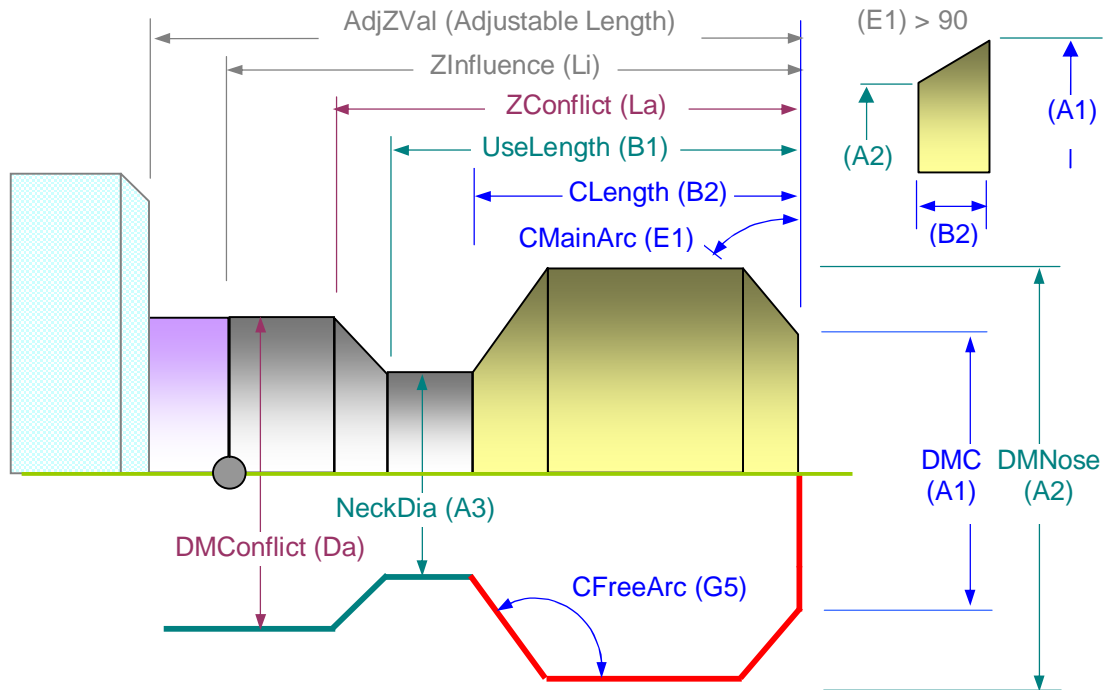


Remarks:

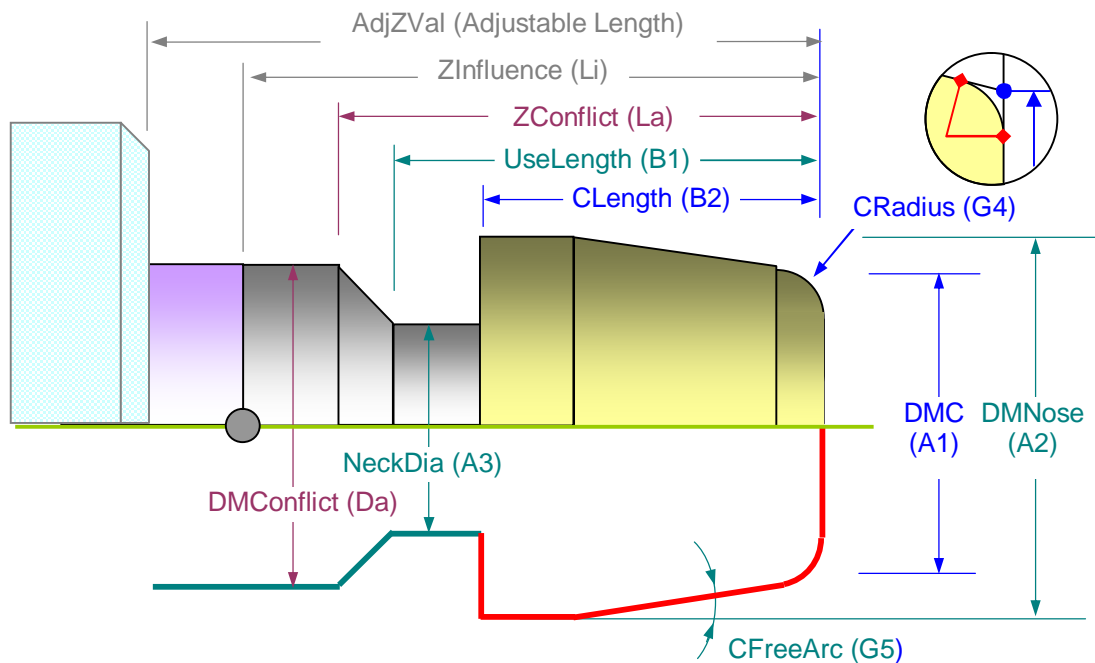
- If $E1 = 0$ and $G4 > 0$: A2 will not be used, if $G4 > 40\%$ of A1: $G4 = (A1)/2$.
- If $E1 = 0$: Radius of insert is used
- Nut supported: thread milling tools

2 - FSN: End mill tool solid

Angle $E1 < > 0$



Angle $E1 = 0$

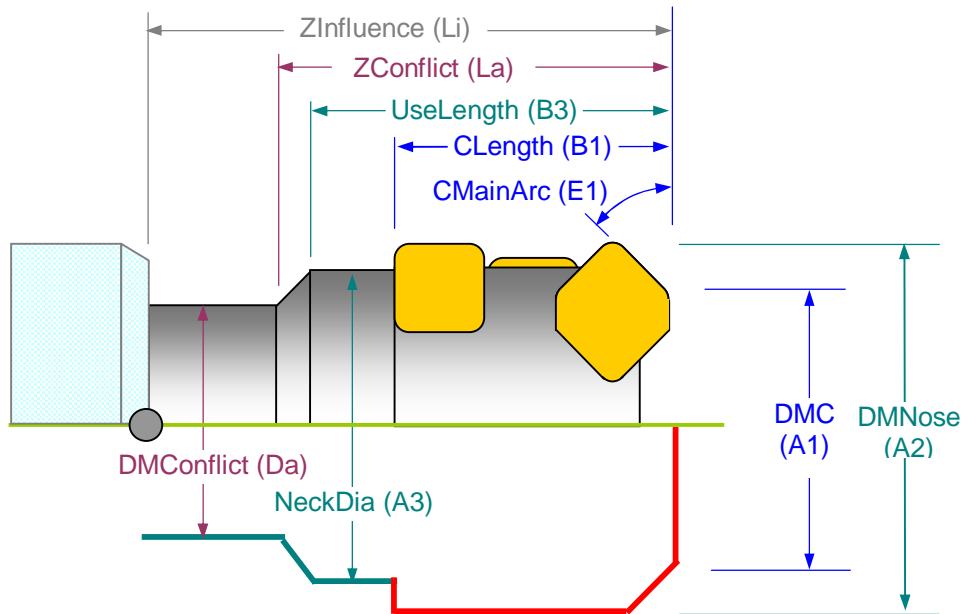


Remarks:

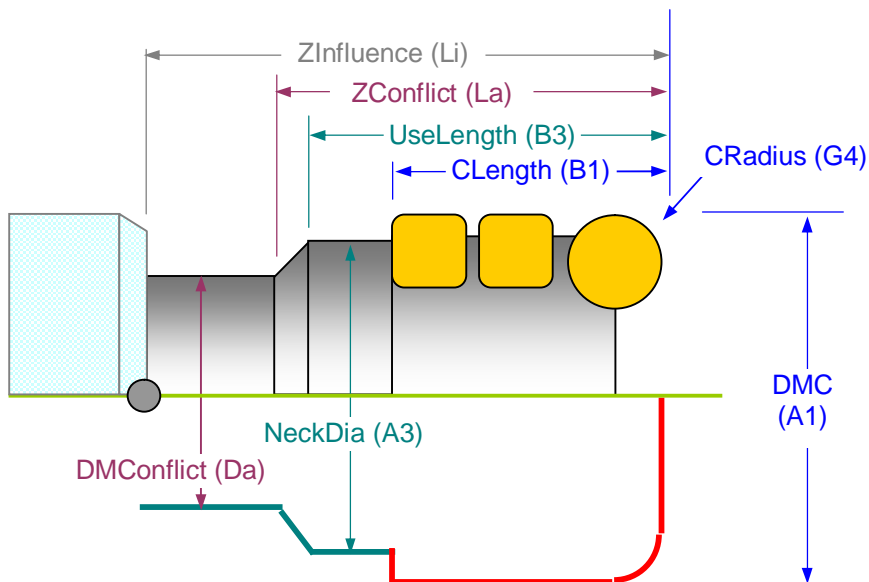
- If $E1 > 0$, G4 is not processed
- Not supported: Lollypop-mills, threading tools

3 - FBJ: Shell mill tool with inserts

Angle E1 $\neq 0$ and $\neq 90$



Angle E1 = 0 or = 90

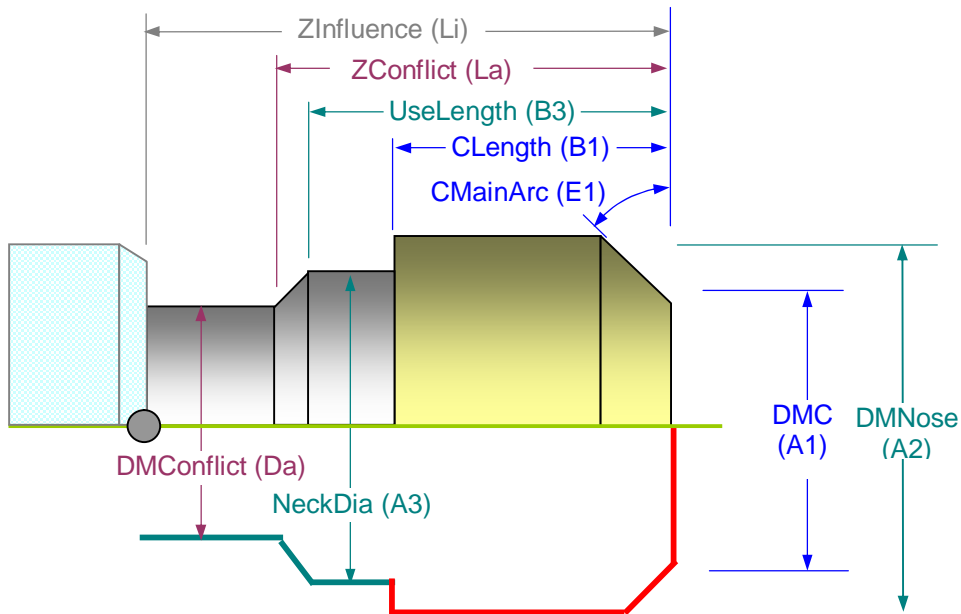


Remarks

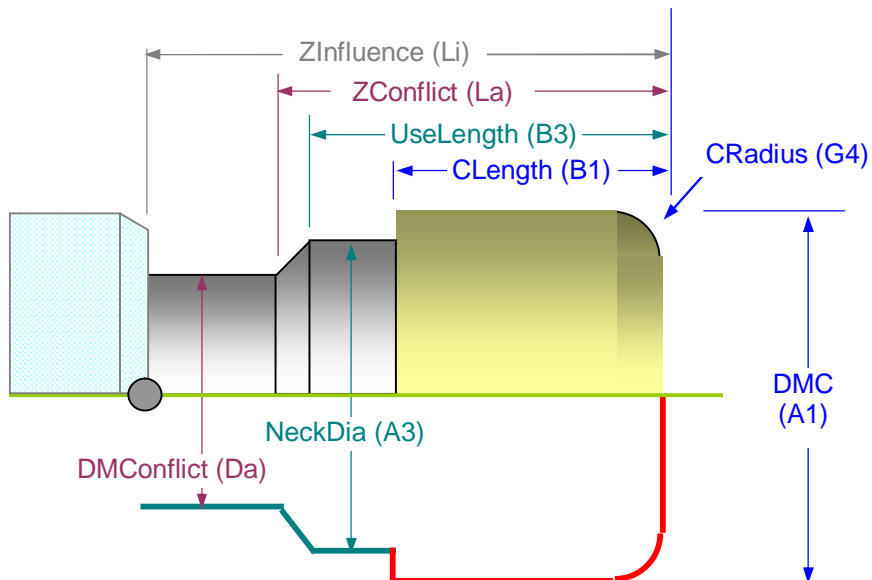
- CLength: automatically set to a minimum of CRadius
- If G4 = 0 and E1 = 0: Radius of insert is used

4 - FBN: Shell mill tool solid

Angle E1 $\neq 0$ and $\neq 90$



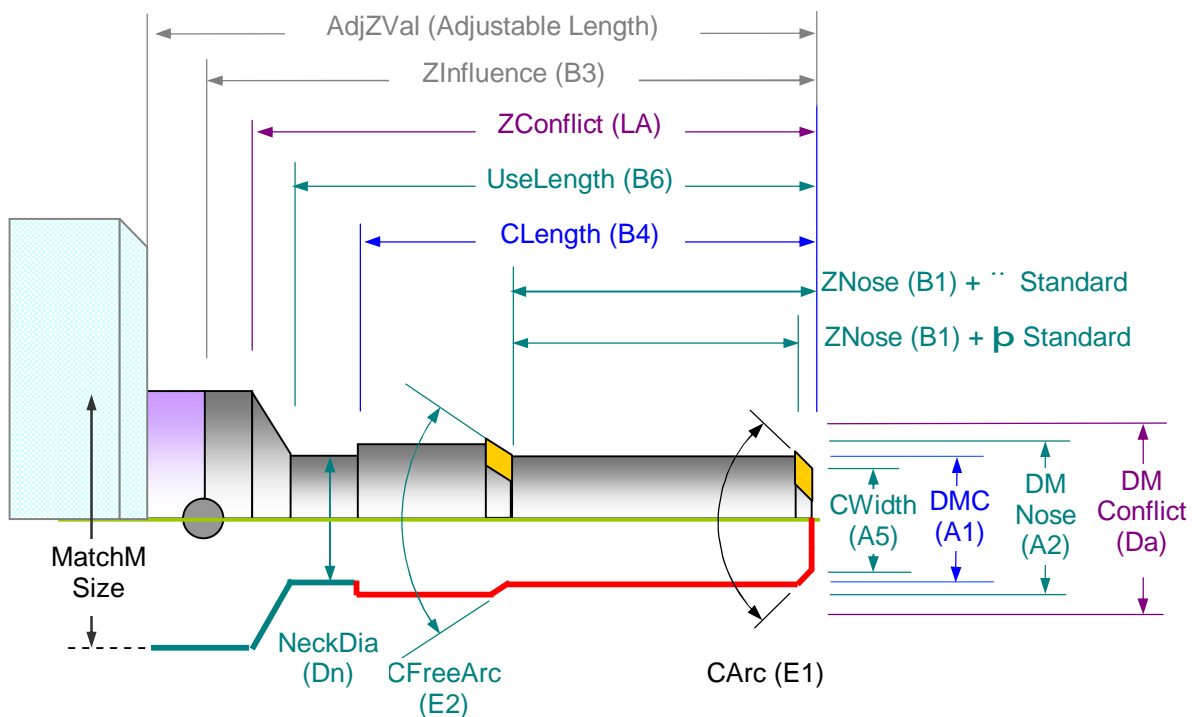
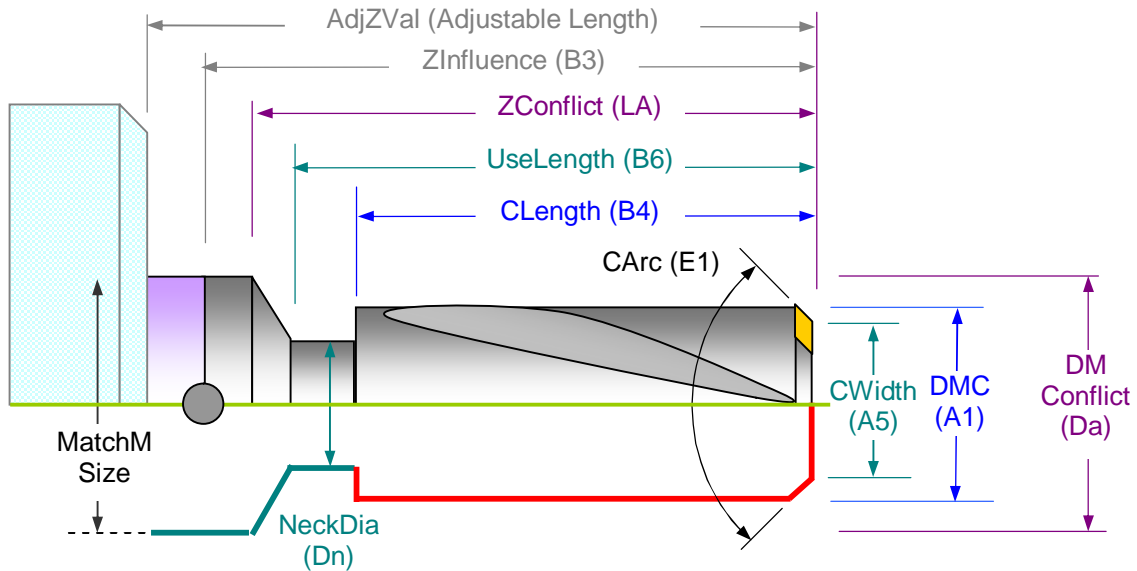
Angle E1 = 0 or = 90



Remarks

- CLength: automatically set to a minimum of CRadius

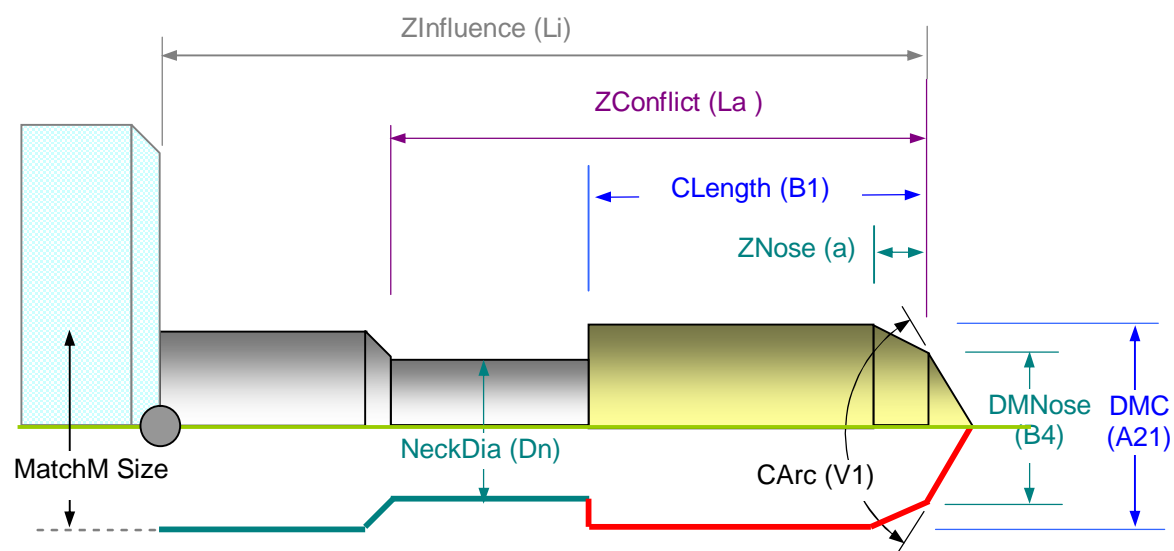
5 - BNJ + 6 - BNN: Drill, reamer, countersink



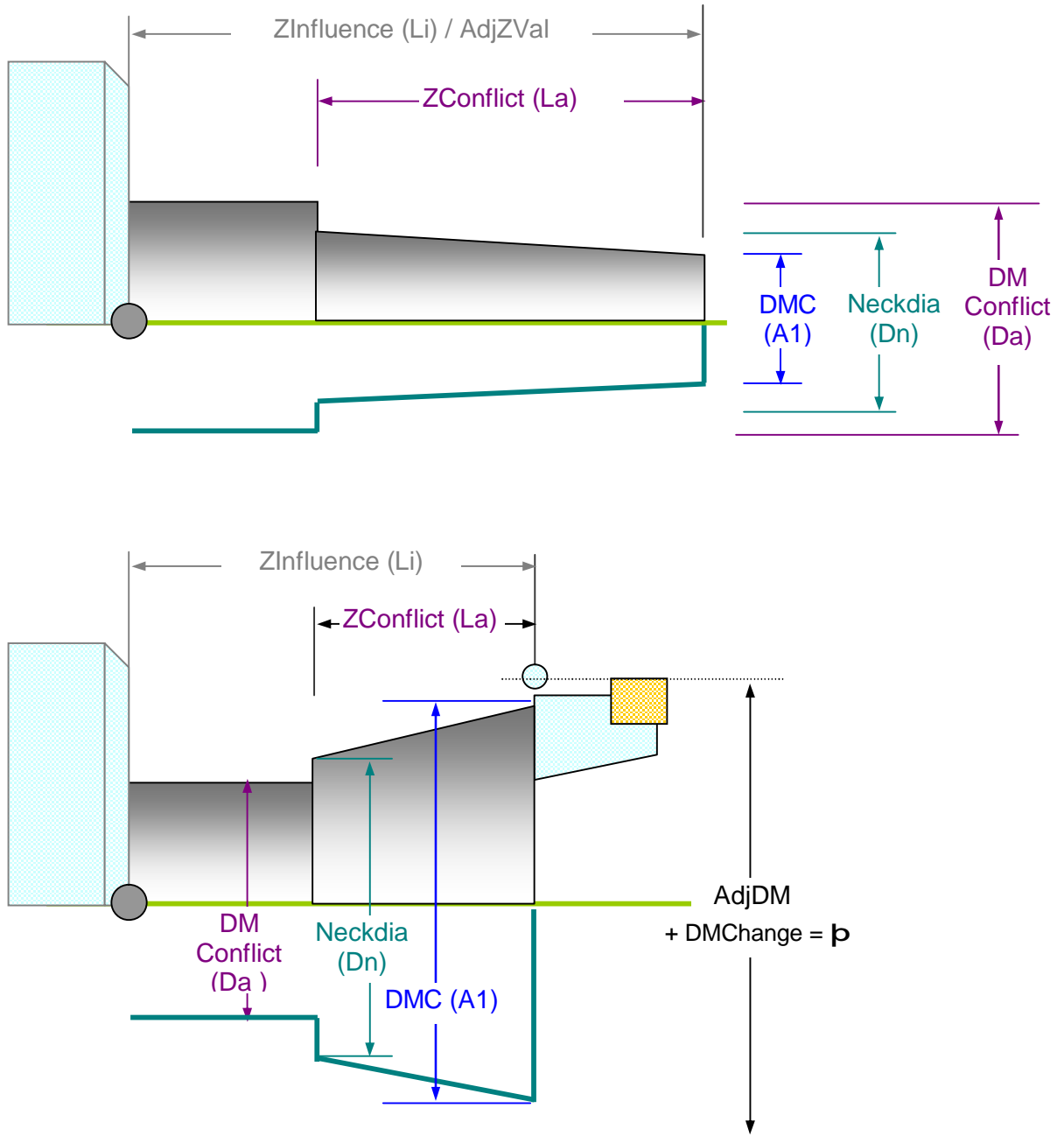
Remarks

- **AdjDM**: DMC (A1) is replaced by the adjustable diameter if existing
- For BNJ: If E1=0 or E1=180: Radius of insert is used

7 - BGN: Tapping tool



8 - MMX: Intermediate unit

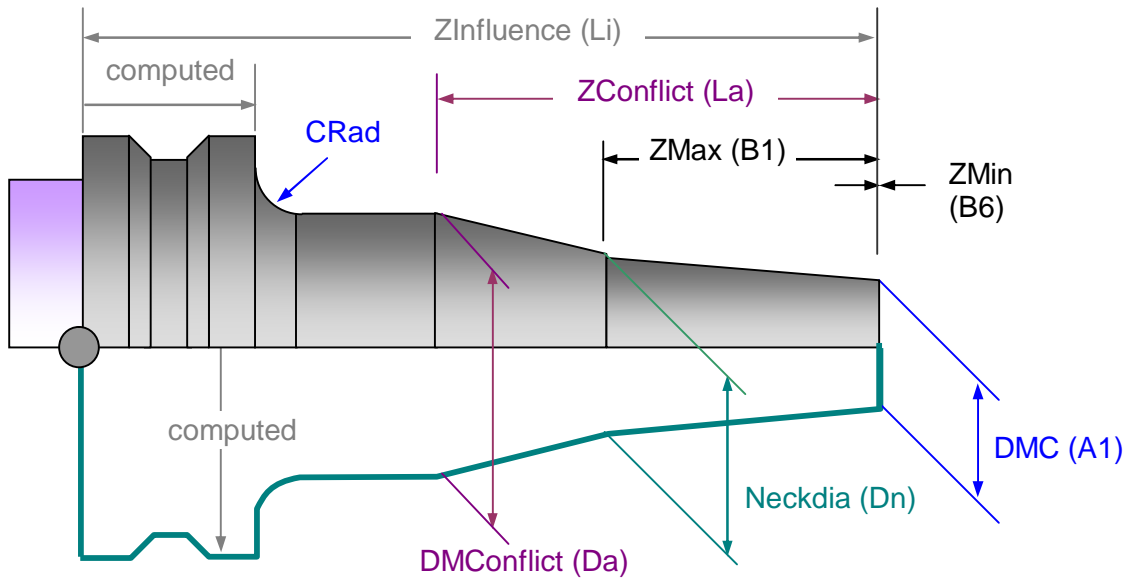


Remarks

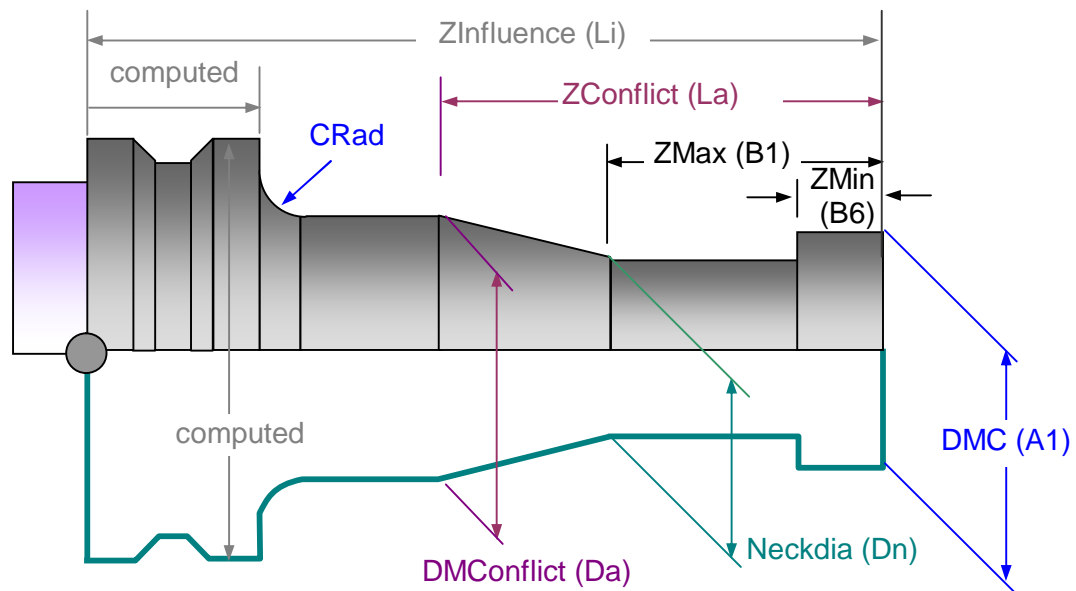
- If $D_n = 0$: $D_n = A_2$
- If $D_a = 0$: $D_a = D_n$
- If $D_2 = 0$: $D_2 = L_i$

9 - MHX: rotating holder

Zmin (B6) = 0



Zmin (B6) <> 0



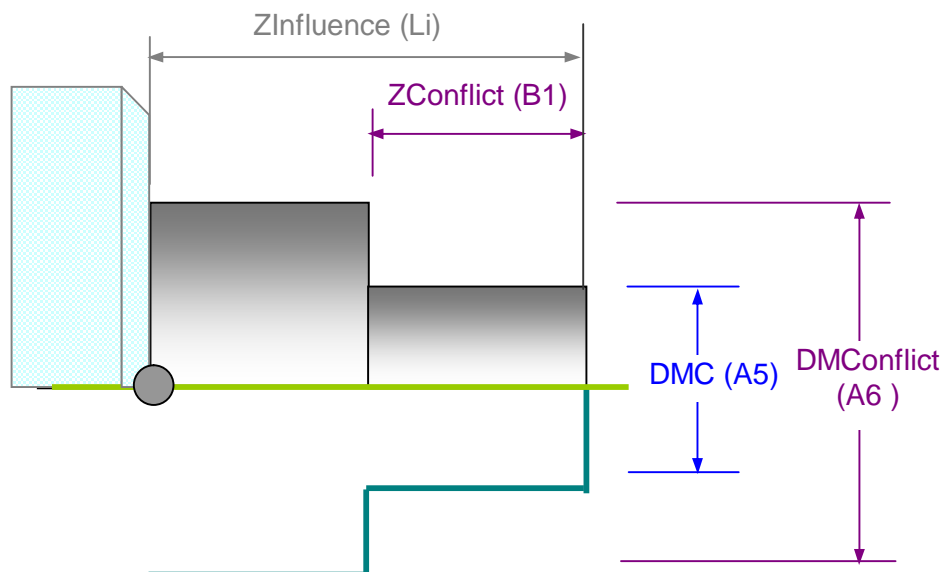
10 - MFX: Steady holder

Not supported yet

11 MZX: Collets

Not to be shaped

12 - MWX: Quick change adapter



Annex

GEO Format Specifications

The xxx.GEO file is an ASCII file containing the geometry of the tool drawing elements (lines and arcs). The elements are listed in the file one after the other. Each element is structured according to one of the following samples:

Line elements:

```
TYPE=1
P1X=0.000000
P1Y=11.000000
P2X=0.000000
P2Y=12.500000
ISCUT=1
ENDEntity
```

Arc elements:

```
TYPE=2
P1X=0.000000
P1Y=12.500000
P2X=-3.000000
P2Y=15.500000
ISCUT=1
PMIDX=-0.878680
PMIDY=14.621320
MIDX=-3.000000
MIDY=12.500000
SA=0.000000
EA=1.570796
RAD=3.000000
ENDEntity
```

Meaning of general Tags

P1	Start point
P2	End point
X=	horizontal direction
Y=	vertical direction
ISCUT=1	element is part of the cutting section of the tool
ISCUT=2	element is part of the shank
ISCUT=3	element is part of the holder

Additional tags for arcs

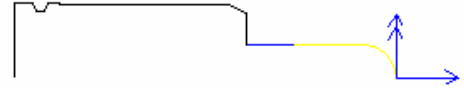
PMID	Additional point on the arc
MID	Centerpoint (Middle)
SA	Angle (radian) of start point (zero = horizontal to the right)
EA	Angle (radian) of end point
RAD	Radius

DXF Format Specifications

The tool tip is the DXF origin, the axes used are X and Y.

The colors and layers used are:

- yellow = CUT = cutting part of the tool
- blue = SHANK = Shank segment of the tool
- black = NOCUT = Holder area of the tool



History

2.2

- #1582: Better Support for Captop Holders
- #1583: Correct calculation of adjustable diameter when using inch components
- #1584: Support for cutter radius for tools with adjustable diameter (e.g. example 616137)
- #1593: Support for ABS Holders

2.1

- #1389: dovetail mills with corner radius supported
- #1390: multiple combinations of tool holder geometrys (e.g. combined CAPTO tools)
- #1391: monoblock tools supported
- #1392: CRad for tool holders supported
- FSN: if B2 < depth resulting from E1 & A1 no shank was drawn
- using same drawing method for FSJ and FBJ

2.0

- Support for WinTool 2007
- #1068: problems with multiple users and professional-checking solved
- #1069: Vertical lines now always have the correct line style CUT/NOCUT... (positive lines: style of next line, negative lines: style of previews line)
- #1070: FSN: quarter round mills are now supported
- #1076: Inch Holders are drawn correctly again
- #1078: Spaces in exportpath supported
- Fix to #1023: Tools with mixed inch / metric components are now supported

1.9

- #992: face milling cutters now have linetype "CUTTER" on the backside for better support in UG (eg. ID 616100)
- #993: BGN: Tapping Tools are now placed correctly at Point 0 / 0 in UG
- #1011: Insert Radius is correctly used for FBJ
- #1012: Insert Radius now supported for BNJ
- #1023: Tools with mixed inch / metric components are now supported

1.8

- New Tool Holder Types supported (#810, #811, #811, #813):
 - Capto (#810)

- KM (#811)
- SK CAT (#813)
- SK DIN 2080
- #822: Graving tools now supported
- #823: Chamfering mill now supported
- #812: Better message if export path not found (former Error 42 Write Tool)
- #809: Changed German to English error messages
- #824: If Adjustment-Length is set too small, tool is accordingly cut off, now
- #825: Correction to tool holder shoulder handling – affecting e.g. ID 616048 tools are now correctly imported into UG

1.7.1

- 7 - BGN: Tapping tools: Neck diameter, chamfer length and pre-bore diameter supported
- Better message if export path not found (former Error 42 Write Tool)
- Better defaults for neck diameter, cutting length and collision values

1.6.9

- Better default handling for cutting and name giving flag

1.6.8

- If minimum length for Assembly is defined, length in Shape is adapted to this minimum.
- 1-FSJ and 2-FSN: Core diameter supported
- 2-FSN: Lollipop supported
- 1-FSJ and 2-FSN: Dove tail mills with radius supported
- 1-FSJ and 3-FBJ Corner Radius from insert supported
- 1-FSJ and 2-FSN: Corner radius with small diameters supported properly
- 5-BNJ: Neck diameter also supported in combination with adjustable diameter
- No more "mdb" file required
- 9-MHX: MAS-BT-35 supported

1.6

- 1-FSJ and 2-FSN: Extended shank possibilities, adapted to DXF Generator method
- 3-FBJ and 4-FBN: Extended shank possibilities, adapted to DXF Generator method
- 3-FBJ and 4-FBN: If cutting radius is given and tool is not conical, A2 is not necessary
- 3-FBJ and 4-FBN: Diameter description for conical ball mills adapted to DXF Generator

1.4

- Backside of cutting elements are cutting too
- Cutting length of conical end mills can be shorter than conical section
- If component is imperial, metrical match codes for machine adapter are converted to inch
- Data path with spaces is allowed
- Cutting radius of insert is used if tool has inserts