



CATIA Interoperability Project Office
IBM Frankfurt, Germany

Projet 07 : V4/V5 2D Migration V4/V5 2D Standard Mapping Original Version 12/2002 Version 07 (V5R16), Update 09/2005



Product Lifecycle Management Solutions

1. Introduction

This document is based on the V4 and V5 integration tests carried out in CATIA Interoperability Project Office (CIPO) for CATIA V4/V5, IBM Frankfurt. To fully understand this document the CATIA specialist requires knowledge of CATIA V4 product and Global understanding of V5.

The fundamental information that is presented in the CATIA Online Documentation is a premise for the use of this paper. In case of any specific application related topics please consult the specialist in that area. The tests will be continued carried out with the arrival of new customer models and also every time the software requirements are changing.

Version 04 enhancements are shown on a blue text

2. Used Hardware and Software for Testing

All the tests in this Document has been performed using the following Hardware and Software:

Hardware:

- UNIX: RS/6000 – 44P170 with GXT 6000 P
- 1,5 GB Memory
- NT: IntelliStation M-Pro FireGL3 Graphics Adapter

Software:

- UNIX
- AIX 4.3.3
- CATIA 4.2.4 R2
- CATIA V5.9 SP1/SP2/SP3
- NT
- Microsoft NT V4 SP3
- CATIA V5.9 SP1/SP2/SP3.

3. Object

During a 2D conversion V4 to V5, V4 annotations and V4 dimensions are migrated in V5 with the same property as V4 or according the V5 2D standard defined in a *.XML file.

V4 2D standard defined in the V4 project file can not be converted as a *.XML file.

This document was created to help V4 customers to set all V5 parameters in this file before starting 2D migration. "As_Result" or "As_Spec..

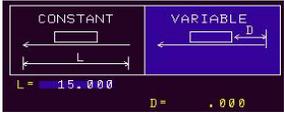
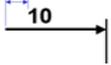
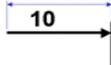
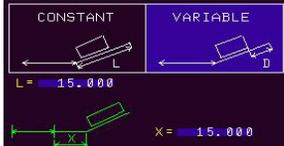
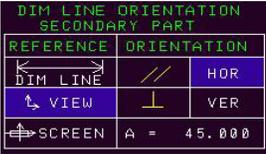
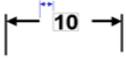
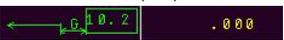
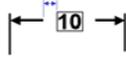
4. V4/V5 standard mapping

4.2 Dimensions & texts properties

These following tables describe for all V4 parameters of DIMENS2 and TEXTD2 :

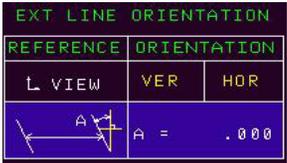
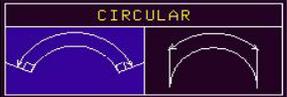
- the equivalent V5 standard parameter to set if it's existing (column V5)
- the V4 to V5 result (same as V5 standard hard coded, same as V5 standard parameter, same as V4 properties, as graphical element)

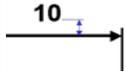
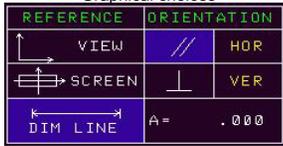
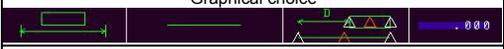
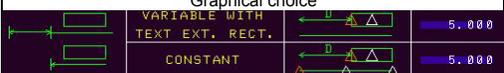
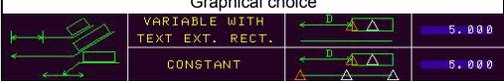
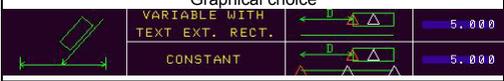
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Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/PARAMS/ CURRENT STANDARD	ISO ; ANSI ; DIN ; JIS ; ASME	International Standard	ParentStandard	[ISO/ANSI/JIS/ASME]		V5 standard to define with equivalent settings

V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ DIM LINE/ ONE-PART	2 graphical choices 	Dimension line length for one-symbol dimensions (distance and angle)	DIMLUnderLine	[2/1] 2=Length relative to value 1 Constant length	The dimension line may either have a given length, or automatically adjust to reach the dimension value	Same as V5 standard Permanent link to the V5 standard
	D (mm)		Hard coded (constant length)	(mm)		Same as hard coded
	L (mm)		DIMLConstantLength (if DIMLUnderLine=1)	(mm)		Same as V5 standard Permanent link to the V5 standard
DIMENS2/ PARAMS/ DIM LINE/ TWO-PART	2 graphical choices 	No specific standard parameter (Same as DIMLUnderline)				Same as V5 standard Permanent link to the V5 standard
	D (mm)	NHard coded (constant length)				Same as hard coded
	L (mm)	No specific standard parameter (Same as DIMLConstantLength)				Same as V5 standard Permanent link to the V5 standard
	X (mm)	No default value in V5 Hard-coded default value in V5				Same as V4 property No link with the V5 standard
DIMENS2/ PARAMS/ DIM LINE/ ORIENTATION	Graphic choices 	V5 Property				Same as V4 property No link with the V5 standard
DIMENS2/ PARAMS/ DIM-LINE/ DIM LINE GAP	G (mm) 	Dimension line gap around unframed value	DIMLTextGap	(mm)		Same as V5 standard Permanent link to the V5 standard
	G (mm) 	Dimension line gap around framed value	DIMLFrameGap	(mm)		Same as V5 standard Permanent link to the V5 standard

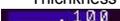
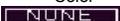
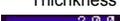
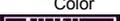
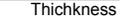
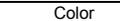
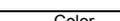
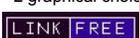
V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/PARAMS/ DIM-LINE/ DIM LINE OVERRUN	D (mm) 	Dimension line display and extent (for non-flipped symbols)	DIMLNoFlippedOverrun	(mm)		Same as V5 standard Permanent link to the V5 standard
	2 graphical choices SYMBOLS INSIDE		DIMLShowNoReverse	[2/1] 2 = displayed 1 = not displayed		
DIMENS2/PARAMS/ DIM-LINE/ DIM LINE OVERRUN	D (mm) 	Dimension line display and extent (for flipped symbols)	DIMLFlippedOverrun	(mm)		Same as V5 standard Permanent link to the V5 standard
	2 graphical choices SYMBOLS OUTSIDE		DIMLShowReverse	[2/1] 2 = displayed 1 = not displayed		
DIMENS2/ PARAMS/ DIM LINE/ RADIUS DIM/ INTERNAL DIM	2 graphical choices 	Extension of dimension line on radius dimensions (value inside circle)	DIMLRadiusIntReachCenter	[2/1] 2 = till center 1 = till value		Up to V5R9 Same as V5 standard Permanent link to the V5 standard V5R10 and later releases New property on each dimension Same as V4 property Optional link to V5 standard
DIMENS2/ PARAMS/ DIM LINE/ RADIUS DIM/ EXTERNAL DIM	2 graphical choices 	Extension of dimension line on radius (value outside circle)	DIMLRadiusExtReachCenter	[2/1] 2 = till center 1 = Constant overrun		Up to V5R9 Same as V5 standard Permanent link to the V5 standard V5R10 and later releases New property on each dimension Same as V4 property Optional link to V5 standard
	D (mm) 10.000		DIMLRadiusExtLength	(mm)		
DIMENS2/ PARAMS/ DIM LINE/ DIAMETER DIM/ INTERNAL DIM	2 graphical choices 	Extension of dimension line on diameters dimensions (value inside circle)	DIMLDiameterIntReachCenter	[2/1] 2 = till center 1 = till value		Up to V5R9 Same as V5 standard Permanent link to the V5 standard V5R10 and later releases New property on each dimension Same as V4 property Optional link to V5 standard
	D (mm) 2.000		DIMLDiameterIntOverrun	(mm)		
DIMENS2/ PARAMS/ DIM LINE/ DIAMETER DIM/ EXTERNAL DIM	2 graphical choices 	Extension of dimension line on diameter (value outside circle)	DIMLDiameterExtReachCenter	[2/1] 2 = till center 1 = Constant overrun		Up to V5R9 Same as V5 standard Permanent link to the V5 standard V5R10 and later releases New property on each dimension Same as V4 property Optional link to V5 standard
	D (mm) 10.000		DIMLDiameterExtLength	(mm)		

EXT_LINE

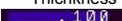
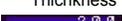
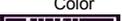
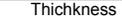
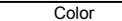
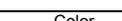
Designation	V4	V5			V4->V5	
	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ EXT-LINE/ BLANKING AND OVERRUN	 <p>D1 (mm)</p>				V5 Property	Same as V4 property No link with the V5 standard
	D2 (mm)				V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/ PARAMS/ EXT-LINE/ ORIENTATION	<p>Graphic choices</p> 				V5 Property	Same as V4 property No link with the V5 standard <u>Restriction</u> "Angle relative to view" option not supported in V5 (only "angle relative to extension line" available)
DIMENS2/ PARAMS/ EXT-LINE/ LENGHT DIMENSION	<p>2 graphic choices</p> 				V5 Property	Same as V4 property No link with the V5 standard
	<p>2 graphic choices</p> 				V5 semantic dimension type not implemented	As graphical element
	<p>3 graphic choices</p> 				Not implemented	As a graphical element

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ DIM TEXT/ VERTICAL POSITIONNING	<p>Position</p> 	Vertical spacing between dimension value and dimension line	DIMTYPos	(mm)		<p>Up to V5R9</p> <p>Same as V5 standard Permanent link to the V5 standard <u>V5R10 and later releases</u> New property on each dimension, initialized from V5 standard value Same as V4 property No permanent link to V5 standard</p>
	H(mm)					
DIMENS2/ PARAMS/ DIM TEXT/ MASKING DIMENSION TEXT	<p>2 graphical choices</p> 	New V5 mode : Dimension line masked by default (opposite representation)				Same as V4 Standard. Can not be modify
DIMENS2/ PARAMS/ DIM TEXT/ ORIENTATION	<p>Graphical choices</p> 	V5 Property				<p>Same as V4 property</p> <p>No link with the V5 standard</p>
DIMENS2/ PARAMS/ DIM TEXT/ HORIZONTAL POSITIONNING (1/2)	<p>Graphical choice</p> 	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified
	D (mm)	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified
	<p>Graphical choice</p> 	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified
	D (mm)	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified
DIMENS2/ PARAMS/ DIM TEXT/ HORIZONTAL POSITIONNING (2/2)	<p>Graphical choice</p> 	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified
	D (mm)	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified
	<p>Graphical choice</p> 	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified
	D (mm)	Parameters not implemented in V5 standard				Same as V4 Standard. Can not be modified

GRAPHIC

V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/PARAMS/ GRAPHIC/ DISPLAY FOR EACH DIMENSION	3 graphical choices 				Up to V5R8 Hard coded "show text " value <u>V5R9 and later releases</u> V5 property	Up to V5R8 Hard coded "show text " value <u>V5R9 and later releases</u> Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ WRITTING DIRECTION	2 graphical choices 				Hard coded (Left to right)	Hard coded value
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ DIM-LINE	Thichness 				V5 Property	Same as V4 property No link with the V5 standard
	Color 				V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ EXT-LINE	Thichness 				V5 Property	Same as V4 property No link with the V5 standard
	Color 				V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ SYMBOL	Thichness 				V5 Property	Same as V4 property No link with the V5 standard
	Color 				V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ TEXT	Thichness 				V5 Property	Same as V5 Text Font thickness No link with the V5 standard
	Color 				V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ FRAME	Thichness 				V5 Property Not implemented - Hard coded thickness index =1	Hard coded (thickness index=1) No link with the V5 standard
	Color 				V5 Property Not implemented - Same Property as dimension value text	Property identical to dimension value text's property. No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ SCORE	Thichness 				V5 Property Not implemented - Hard coded thickness index =1	Hard coded (thickness index=1) No link with the V5 standard
	Color 				V5 Property Not implemented - Same Property as dimension value text	Property identical to dimension value text's property. No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ SCALE	2 graphical choices 				V5 Property Not implemented - Hard coded "Free" value	Same as hard code : Free

GRAPHIC

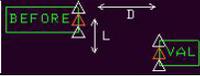
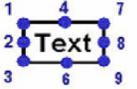
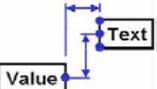
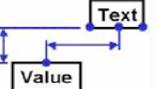
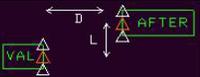
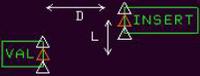
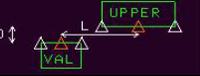
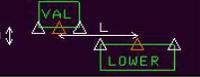
V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/PARAMS/ GRAPHIC/ DISPLAY FOR EACH DIMENSION	3 graphical choices 		Up to V5R8 Hard coded "show text " value <u>V5R9 and later releases</u> V5 property			Up to V5R8 Hard coded "show text " value <u>V5R9 and later releases</u> Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ WRITING DIRECTION	2 graphical choices 		Hard coded (Left to right)			Hard coded value
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ DIM-LINE	Thickness 		V5 Property			Same as V4 property No link with the V5 standard
	Color 		V5 Property			Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ EXT-LINE	Thickness 		V5 Property			Same as V4 property No link with the V5 standard
	Color 		V5 Property			Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ SYMBOL	Thickness 		V5 Property			Same as V4 property No link with the V5 standard
	Color 		V5 Property			Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ TEXT	Thickness 		V5 Property			Same as V5 Text Font thickness No link with the V5 standard
	Color 		V5 Property			Same as V4 property No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ FRAME	Thickness 		V5 Property Not implemented - Hard coded thickness index =1			Hard coded (thickness index=1) No link with the V5 standard
	Color 		V5 Property Not implemented - Same Property as dimension value text			Property identical to dimension value text's property. No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ DIMENSION COMPONENTS/ SCORE	Thickness 		V5 Property Not implemented - Hard coded thickness index =1			Hard coded (thickness index=1) No link with the V5 standard
	Color 		V5 Property Not implemented - Same Property as dimension value text			Property identical to dimension value text's property. No link with the V5 standard
DIMENS2/PARAMS/ GRAPHIC/ SCALE	2 graphical choices 		V5 Property Not implemented - Hard coded "Free" value			Same as hard code : Free

FRAME

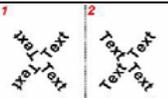
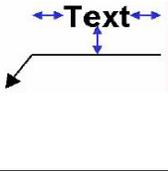
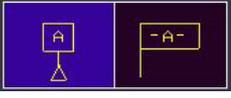
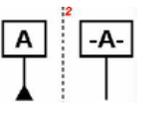
V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ FRAME/ DIMENSION	<p>3 graphic choices (except 2 measures chamfer)</p> 		V5 Property			Same as V4 property No link with the V5 standard
DIMENS2/ PARAMS/ FRAME/ DUAL DIMENSION	<p>4 graphic choices</p> 		V5 Property			Same as V4 property No link with the V5 standard

PREFIX

V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ PREFIX/DISTANCE	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/ PARAMS/ PREFIX/LENGHT	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/ PARAMS/ PREFIX/ANGLE	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/ PARAMS/ PREFIX/DIAMETER	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/ PARAMS/ PREFIX/RADIUS	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/ PARAMS/ PREFIX/CHAMFER	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/PARAMS/ PREFIX/DIAMETER CONE	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/PARAMS/ PREFIX/RADIUS SPHERE	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/PARAMS/ PREFIX/DIAMETER SPHERE	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/ PARAMS/ PREFIX/SLOPE	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					
DIMENS2/PARAMS/ PREFIX/CONICAL TAPER	NONE	D(mm)	V5 Property	Hard coded	Same as V4 property No link with the V5 standard	
	PREF 1.000					
	SUFF					

V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ TEXT/ BEFORE		Point to be used on the associated text as a reference for positioning	ASTBeforePosReference	7=top 8=center 9=bottom	 reference for positioning  for Before/After/Insert texts  for Upper/Lower texts	Same as V5 standard Permanent link to the V5 standard
	D (mm)	Horizontal offset for positioning	ASTBeforeXDist	(mm)		Same as V5 standard Permanent link to the V5 standard
	L (mm)	Vertical offset for positioning	ASTBeforeYDist	(mm)		Same as V5 standard Permanent link to the V5 standard
DIMENS2/ PARAMS/ TEXT/ AFTER		Point to be used on the associated text as a reference for positioning	ASTAfterPosReference	1=top 2=center 3=bottom		Same as V5 standard Permanent link to the V5 standard
	D (mm)	Horizontal offset for positioning	ASTAfterXDist	(mm)		Same as V5 standard Permanent link to the V5 standard
	L (mm)	Vertical offset for positioning	ASTAfterYDist	(mm)		Same as V5 standard Permanent link to the V5 standard
DIMENS2/ PARAMS/ TEXT/ INSERT		Point to be used on the associated text as a reference for positioning	ASTInsertPosReference	1=top 2=center 3=bottom		Same as V5 standard Permanent link to the V5 standard
	D (mm)	Horizontal offset for positioning	ASTInserXDist	(mm)		Same as V5 standard Permanent link to the V5 standard
	L (mm)	Vertical offset for positioning	ASTInserYDist	(mm)		Same as V5 standard Permanent link to the V5 standard
DIMENS2/ PARAMS/ TEXT/ UPPER		Point to be used on the associated text as a reference for positioning	ASTUpperPosReference	1=left 4=center 7=right		Same as V5 standard Permanent link to the V5 standard
	D (mm)	Horizontal offset for positioning	ASTUpperXDist	(mm)		Same as V5 standard Permanent link to the V5 standard
	L (mm)	Vertical offset for positioning	ASTBUpperYDist	(mm)		Same as V5 standard Permanent link to the V5 standard
DIMENS2/ PARAMS/ TEXT/ LOWER		Point to be used on the associated text as a reference for positioning	ASTLowerPosReference	3=left 6=center 9=right	Same as V5 standard Permanent link to the V5 standard	
	D (mm)	Horizontal offset for positioning	ASTLowerXDist	(mm)	Same as V5 standard Permanent link to the V5 standard	
	L (mm)	Vertical offset for positioning	ASTLowerYDist	(mm)	Same as V5 standard Permanent link to the V5 standard	
TEXTD2/ GRAPH/ DISPLAY	2 graphical choices 	V5 Property			Same as V4 property No link with the V5 standard	

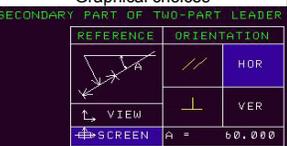
TEXT

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
TEXTD2/ GRAPH/ SCALE	2 graphical choices 	<u>Text, Welding symbol, + R10 GD&T, Balloon</u> V5 Property <u>DatumFeature, Datum Target, Roughness symbol</u> Hard coded (Free)				<u>Text, Welding symbol, + R10 GD&T, Balloon</u> Same as V4 property <u>DatumFeature, Datum Target, Roughness symbol</u> Hard coded (Free)
TEXTD2/ GRAPH/ WRITING RULES		<u>Text, Welding symbol, + R10 GD&T, Balloon</u> V5 Property <u>DatumFeature, Datum Target, Roughness symbol</u> Standard TXTAngleAllowed parameter (described below)				<u>Text, Welding symbol, + R10 GD&T, Balloon</u> Same as V4 property <u>DatumFeature, Datum Target, Roughness symbol</u> Permanent link to the V5 standard
		Text angle	TXTAngleAllowed	[1/2] 1=0 to 360 degrees 2=-90 to 90 degrees		
TEXTD2/ LEADER/ LEADER-TEXT POSITIONNING AND DISTANCES	 <p>Justification</p>	Hard coded (bottom point)				Hard coded (bottom point)
	A(mm)	V5 standard parameters exist for texts and roughness symbols on R10 (Before R10, positioning for texts was hard-coded)	TXTLeaderLeftTail for roughness	(mm)		Same as V5 standard Permanent link to the V5 standard
	B(mm)		TXTLeaderRightTail for roughness	(mm)		
	L (mm)		1) TXTLeaderVertSpace for roughness. 2) LeaderVerSpace for V5 texts	(mm)		
TEXTD2/ LEADER/ GAP	 <p>C(mm)</p>	1) TXTLeaderGap for roughness. 2) LeaderGap for Texts	(mm)			
TEXTD2/ GRAPH/ WRITING RULES	2 graphical choices 	Text angle	TXTDatumMode	[1/2] 1=normal 2=flag		Same as V5 standard Permanent link to the V5 standard <u>Restriction</u> This parameter only has an effect for standards whose ParentStandard is ASME or ANSI
TEXTD2/ MIRROR/	2 graphical choices 	V5 Property for texts and balloons Hard coded for other annotation types				Same as V4 property for Text/balloon, and hard coded for others No link with the V5 standard
		Text thickness (for compatibility with V4)	TXTThickness	(mm)		Same as V4 property No link with the V5 standard

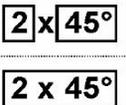
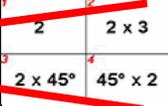
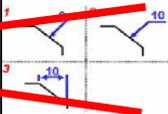
SCORE

V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ SCORE/ SINGLE DIMENSION	3 graphical choices 	V5 Property				Same as V4 property No link with the V5 standard
DIMENS2/ SCORE/ DUAL DIMENSION	3 graphical choices 	V5 Property				Same as V4 property No link with the V5 standard
DIMENS2/ SCORE/ POSITIONING & TEXTD2/ ABC	 D1 (mm) D2 (mm) H (mm)	Size of dimension value underline.No Equivalency for V5 Text	SCORLeftTail SCORRightTail SCORVertSpace	(mm) (mm) (mm)		<u>Dimension scoring</u> Same as V5 standard Permanent link to the V5 standard <u>Other elements</u> Hard coded

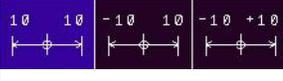
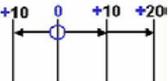
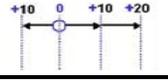
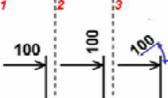
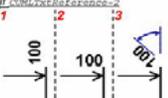
LEADER

V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ LEADER/ LEADER SYMBOL	Symbol 	V5 Property				Same as V4 property No link with the V5 standard
	Scale 	Hard coded (=1.0)				Same as hard code : scale=1.0
DIMENS2/ PARAMS/ LEADER/ LEADER LENGTH	2 graphical choices 	Hard coded (overrun depends on value extent)				Same as hard coded
	L1(15 mm) si (L1 CONSTANT)	Not implemented				
	L2 (15 mm)	Hard coded (constant length)				Same as hard coded
DIMENS2/ PARAMS/ LEADER/ LEADER ORIENTATION	A(60 degrees) 	V5 Property				Same as V4 property No link with the V5 standard
	Graphical choices 	Hard coded (angle is relative to dimension line)				Same as hard coded

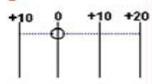
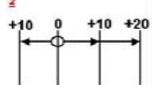
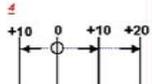
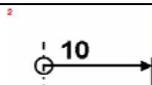
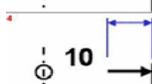
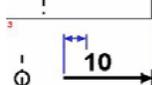
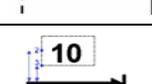
CHAMFER

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ PARAMS/ CHAMFER/ IF 2 MEASURES		Hard coded ("X" separator)				Same as hard coded
		Chamfer separator font height	CHFSepHeight	(mm)	2 x 45°	Same as V5 standard Permanent link to the V5 standard
DIMENS2/ PARAMS/ CHAMFER/ ENTITY TO BE FRAMED	2 graphical choices 	Chamfer value framing	CHFFrameGroup	[1/2] 1=separately 2=as a whole		Same as V5 standard Permanent link to the V5 standard
	3 graphical choices 	Chamfer dimension mode (Not Implemented in standard)			[1/2/3/4] 1=dist x dist 2=dist x angle 3=angle x dist 4=angle x dist	
DIMENS2/ Option	2 graphical choices 	Chamfer dimension representation (Not Implemented in standard)	CHFRepModeDist (If CHFMeasureMode=1) CHFRepModeDistDist (If CHFMeasureMode=3) CHFRepModeAngleDist (If CHFMeasureMode=4)	[1/2/3] 3=2symbols		Same as V4 property No link with the V5 standard

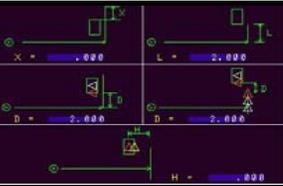
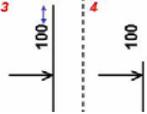
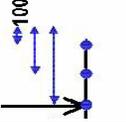
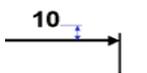
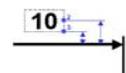
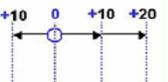
CUMULATE

V4		V5				V4->V5						
Designation	Description/default value	Designation	Variable	Standard value	Description	Result						
DIMENS2/ CUMULATE/ VALUE SIGN DISPLAY		Cumulate dimensions sign display	CUMLSignDisplay	[1/2/3] 1=no sign 3=positive sign on all value		Same as V5 standard Permanent link to the V5 standard						
DIMENS2/ CUMULATE/ ORIGIN	ORIGIN SYMBOL : 	Origin symbol shape	CUMLOriginSymbol	[0/.../13] 0=none 1-13=refer to "dimension line symbols" table		Same as V5 standard Permanent link to the V5 standard						
	SCALE : 1.000	Origin symbol size scale	CUMLSymbolScale	(real)		Same as V5 standard Permanent link to the V5 standard						
	EXT LINE DISPLAY: YES NO	Extension line display	CUMLExtLDisplay	[2/1] 2=display 1=no display	Documentation V5R9 is wrong only origine extension line is impacted by this parameter.	Same as V5 standard Permanent link to the V5 standard						
	ZERO DISPLAY : YES NO	Display of origin zero	CUMLZeroDisplay	[2/1] 2=display 1=no display		Same as V5 standard Permanent link to the V5 standard						
DIMENS2/ CUMULATE/ DIM TEXT ORIENTATION REFERENCE	<table border="1"> <tr> <td>REFERENCE</td> <td>ORIENTATION</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>DIM LINE</td> <td></td> </tr> </table>	REFERENCE	ORIENTATION			DIM LINE		Value orientation reference	CUMLTxtReference	[1/2] 1=dimension line 2=extension line		Same as V5 standard Permanent link to the V5 standard
REFERENCE	ORIENTATION											
												
DIM LINE												
DIMENS2/ CUMULATE/ DIM TEXT ORIENTATION	<table border="1"> <tr> <td></td> <td>A = .000</td> </tr> <tr> <td>EXT LINE</td> <td></td> </tr> </table>		A = .000	EXT LINE		Value orientation	CUMLTxtOrient	[1/2/3] 1=parallel 2=perpendicular 3=angle		Same as V5 standard Permanent link to the V5 standard		
		A = .000										
EXT LINE												
A (mm)	CUMLTxtAngle (if CUMLTxtOrient=3)	(degrees)		Same as V5 standard Permanent link to the V5 standard								

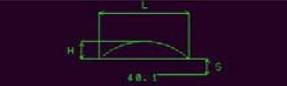
CUMULATE

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ CUMULATE/ DIM LINE		Dimension representation	line CUMLDimLDisplay	[1/2/4] 1=no display 3=full display 4=partial display	 	Same as V5 standard Permanent link to the V5 standard
	L(mm)	Dimension line length	CUMLDimLLength (if CUMLTextReference=2 & CUMLDimLDisplay=3)	(mm)		Same as V5 standard Permanent link to the V5 standard
	V4 parameter name exits : - Length depends on text ext. rectl. - Length constant up to origine - Length constant	Dimension line mode	CUMLDimLinMode (if CUMLTextReference=1)	[2/3/4] 2=from origin 3=constant 4=overrun text box	 	Same as V5 standard Permanent link to the V5 standard
	V4 parameter name exits : - See "X" in the Dim line window"	Dimension line overrun	CUMLDimLinTail (if CUMLTextReference=1 & CUMLDimLinMode=4)	(mm)		Same as V5 standard Permanent link to the V5 standard
	V4 parameter name exits : - See "Horizontal positioning / vertical positioning in the dim line window"	Value positioning	CUMLTvtVJusti1 (if CUMLTextReference=1)	1=Edge 2= Center		Same as V5 standard Permanent link to the V5 standard

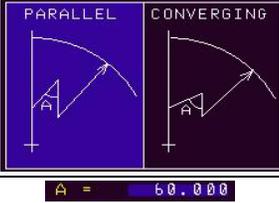
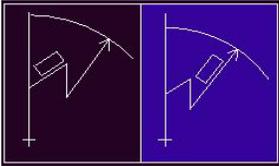
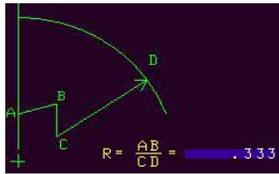
CUMULATE

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ CUMULATE/ EXT LINE		Cumulate dimension extension line mode	CUMLExtMode	[3/4] 3=relative to text box 4=constant		Same as V5 standard Permanent link to the V5 standard
	X(mm)	Cumulate dimension extension line length	CUMLExtLOver <i>(if CUMLExtMode=3)</i>	(mm)		Same as V5 standard Permanent link to the V5 standard
	L(mm)		CUMLExtLLength <i>(if CUMLExtMode=4)</i>	(mm)		Same as V5 standard Permanent link to the V5 standard
	D(mm)	CUMLExtLTxtVPos <i>(if CUMLExtMode=4)</i>	(mm)	Same as V5 standard Permanent link to the V5 standard		
	D(mm)	Cumulate dimension extension text position	CUMLExtLTxtVPos <i>(if CUMLExtMode=3)</i>	(mm)		Same as V5 standard Permanent link to the V5 standard
	No standard parameter		CUMLExtLTxtRef <i>(if CUMLExtMode=3)</i>	Not yet implemented		Same as V5 standard Permanent link to the V5 standard
	No standard parameter		CUMLExtVJust1 <i>(if CUMLExtMode=3)</i>	Not yet implemented		
	No standard parameter		CUMLExtVJust2 <i>(if CUMLExtMode=4)</i>	Not yet implemented		
	No standard parameter		CUMLExtHJusti	[2/3] 2=center 3=right		Same as V5 standard Permanent link to the V5 standard
	No standard parameter	Distance between dimension and dimension line	V5 Property	(mm)		Same as V4 property No link with the V5 standard
	No standard parameter	Dimension vertical justification	CUMLExtVJust	[2/3] 2=center 3=bottom		Same as V5 standard Permanent link to the V5 standard
	No standard parameter	Extension line display	CUMLExtLDisplay	[2/1] 2=display 1=no display		Same as V5 standard Permanent link to the V5 standard

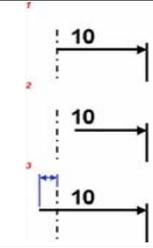
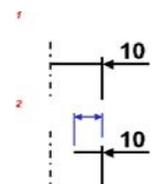
ARC LENGTH

V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ ARC_LENGTH/ SYMBOL DISPLAY	2 graphical choices 	Display Symbol				Same as V5 standard Permanent link to the V5 standard
DIMENS2/ ARC_LENGTH/ HEIGHT	(mm) 	Height				Same as V5 standard Permanent link to the V5 standard
DIMENS2/ ARC_LENGTH/ SPACING	 HEIGHT H = 1.000 SPACING S = 1.000	Spacing				Same as V5 standard Permanent link to the V5 standard
DIMENS2/ ARC_LENGTH/ LENGTH	LENGTH CONSTANT L = 3.000 DEPENDS ON L MIN = 3.000 VALUE EXT. REC. L MAX = 10.000	Length - Minimum Length - Maximum Length				Same as V5 standard Permanent link to the V5 standard

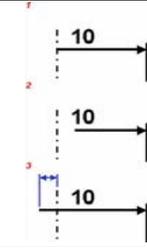
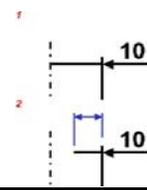
FORESHORTENED

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ FORESHORTENED/ SEGMENT ORIENTATION	2 graphical choices 				V5 Property	Same as V4 property No link with the V5 standard
					V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/ FORESHORTENED/ TEXT POSITION	2 graphical choices 				V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/ FORESHORTENED/ BREAK POSITION	R 				V5 Property	Same as V4 property No link with the V5 standard
DIMENS2/ FORESHORTENED/ ORIGIN	Symbol 				Hard coded ("X" symbol)	Same as hard coded
	Scale 				V5 Property	Same as V4 property No link with the V5 standard

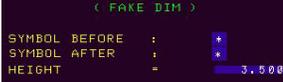
HALF-DIM

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ HALF-DIM/ INSIDE DIM	3 graphical choices 	Half-dimension dimension line extent (if value is inside)	HLFIntOverrunMode	[1/2/3] 1=till axis 2=under value 3=over axis		Same as V5 standard Permanent link to the V5 standard
	D (mm)			HLFIntOverrun (If HLFIntOverrunMode=3)		
DIMENS2/ HALF-DIM/ OUTSIDE DIM	3 graphical choices 	Half-dimension dimension line extent (if value is outside)	HLFExtOverrunMode	[1/2] 1=till axis 2=constant overrun		Same as V5 standard Permanent link to the V5 standard
	L (mm)			HLFExtOverrun (If HLFExtOverrunMode=2)		

HALF-DIM

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ HALF-DIM/ INSIDE DIM	3 graphical choices 	Half-dimension dimension line extent (if value is inside)	HLFIntOverrunMode	[1/2/3] 1=till axis 2=under value 3=over axis		Same as V5 standard Permanent link to the V5 standard
	D (mm)			HLFIntOverrun (If HLFIntOverrunMode=3)		
DIMENS2/ HALF-DIM/ OUTSIDE DIM	3 graphical choices 	Half-dimension dimension line extent (if value is outside)	HLFExtOverrunMode	[1/2] 1=till axis 2=constant overrun		Same as V5 standard Permanent link to the V5 standard
	L (mm)			HLFExtOverrun (If HLFExtOverrunMode=2)		

FAKE DIM

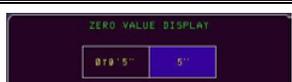
V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ FAKE/ FAKE_DIM SYMBOLS			FAKIdentifyMode	[1/2/3] 1=underline 2=parenthesis 3=none	Not implemented (it is managed on each dimension in Edit properties)	Same as Hard code
DIMENS2/ FAKE/ FAKE_DIM	 X(mm)	Fake dimension value display	FAKUnderlineTail FAKVerticalOffset (If FAKIdentifyMode=1)	(mm)		
DIMENS2/ FAKE/ (FAKE_DIM)		Hard coded (no character) (the * character is only a default value for Edit/Property panel)				Same as Hard code

V4		V5				V4->V5
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/ DUAL/ DIM_TYPE		V5 Property				Same as V4 property No link with the V5 standard
DIMENS2/ DUAL/ SIDE BY SIDE		Hard code				Same as hard code : sign = ""
	H (mm)	Dual dimension separator height for side-by-side dual display	DUASideSepHeight	(mm)	40.64 / 1'6"	Same as V5 standard Permanent link to the V5 standard
DIMENS2/ DUAL/ FRACTION LINE		V5 Property				Same as V4 property No link with the V5 standard
DIMENS2/ DUAL/ TOP		Dual dimension display for values above-one-another	DUAPosReference	[1/2/3] 1=top 2=center 3=bottom		Same as V5 standard Permanent link to the V5 standard
	Y1 (mm)		DUAAboveSpace	(mm)		Same as V5 standard Permanent link to the V5 standard
	Y2 (mm)		DUAABoveOffset	(mm)		Same as V5 standard Permanent link to the V5 standard
DIMENS2/ DUAL/ JUSTIFICATION			DUAJustification	[1/2/3] 1=left 2=center 3=right		Same as V5 standard Permanent link to the V5 standard

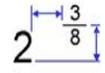
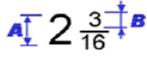
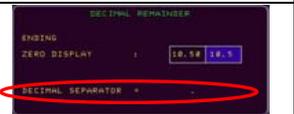
SLOPE

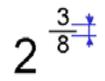
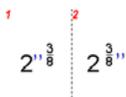
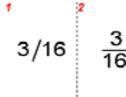
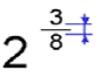
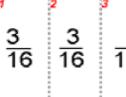
V4		V5			V4->V5	
Designation	Description/default value	Designation	Variable	Standard value	Description	Result
DIMENS2/SLOPE/ VALUE ORIENTATION	3 graphical choices 	V5 dimension type not implemented as "semantic" dimension			Migrated as graphical dimension	
	4 graphical choices 	V5 dimension type not implemented as "semantic" dimension			Migrated as graphical dimension	
DIMENS2/ SLOPE/ VALUE PRESENTATION	X(1) si (Choice<->%)	V5 dimension type not implemented as "semantic" dimension			Migrated as graphical dimension	
	DENOMINATOR PRECISION(1) si (Choice<->%)	V5 dimension type not implemented as "semantic" dimension			Migrated as graphical dimension	
	VALUE PRECISION(1) si (Choice=%)	V5 dimension type not implemented as "semantic" dimension			Migrated as graphical dimension	
DIMENS2/ SLOPE/ JUSTIFICATION FOR	3 graphical choices 	V5 dimension type not implemented as "semantic" dimension			Migrated as graphical dimension	
DIMENS2/ SLOPE/ CALCULATION MODE	2 graphical choices 	V5 dimension type not implemented as "semantic" dimension			Migrated as graphical dimension	

4.2 Dimensions : numerical display

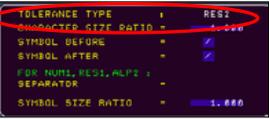
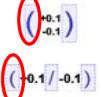
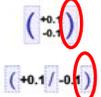
V4				V5			
DRWSTD category	Description	Type	V5 Name	Description	Values	Changeable in the properties of each dimension	
NAME	NUMERICAL DISPLAY User defined name used as the description identifier		String.	NDName		String.	No
GENERALITIES	DISPLAY TYPE Type of measure		Distance, angle, other	NDType		[1/2] 1 = Distance, 2 = Angle.	The type of Numerical Display can be changed in the Properties Properties // Format //Description
	REFERENCE UNIT Unit used to display the dimension value		mm, inch, rad, deg, grad	NDUnit		[1././5] 1 = mm, 2 = inch, 3 = radian, 4 = degree, 5 = grade.	
	ASSOCIATED FACTOR Factor used to multiply the dimension measured value.		Real	NDGlobalfact		Real	
ZERO VALUE DISPLAY	Display of null terms and leading zeros. 60,25 cm ===== 0m 60,25cm		Zeros displayed or not	NDNuIFac_1...3 => To be set for each term in V5! If the value is made of more than one term (up to 3 terms plus a rest): NDNuIOther		[1/2] 1=No display of the zeros, 2=Display of the zeros.	No
LAST FACTOR ZERO	Display of null for one term 0.5 ou .5		Zeros displayed or not				
THOUSAND SEPARATOR	DISPLAY 1 000 or 1,000 or 1.000,....		[YES/NO]	NDExise		[1/2] 1=No display of separator, 2=Display of separator.	No
	SEPARATOR Separator characters for thousands		Char: To be defined.	NDSep1000		To be defined in the 18 available characters	No

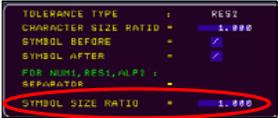
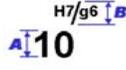
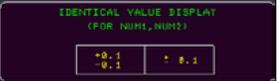
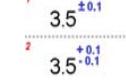
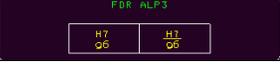
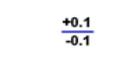
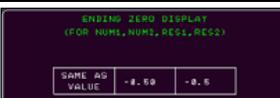
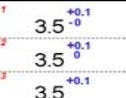
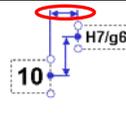
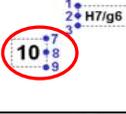
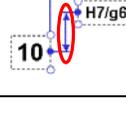
V4				V5			
DRWSTD category	Description	Type	V5 Name	Description	Values	Changeable in the properties of each dimension	
TERMS/ VALUE	NUMBER Number of terms (3 max.) 160, 25 cm or 1m 60,25 cm or 1m 60cm 2.5mm			NDFact	[1...3]	Yes: Properties // Format // Display	
	FACTOR To define the factor between 2/3 terms		Real.	NDFact_1...3 (for NDUnit=mm, NDGlobFact=1 and NDFact_1=1 and NDFac_2 = 10.)	Real.	No	
	VERTICAL POSITION Alignment		Measure (in mm)	NDValPos1...3		Measure (in mm)	No
TERMS/ UNIT	FACTOR UNIT		String.	NDSepar_1...3		String.	No
	GRAPHISM		String.		HARD CODED	The font parameters of the dimensions can be modified in the Font sheet of the dimension's properties	
	FONT		String.		HARD CODED		
	HEIGHT RATIO		Real	NDSepSc1_1...3			Real (ratio to the value height)
	VERTICAL POSITION		(mm)	NDSepPos_1...3		Measure (in mm)	No

V4				V5			
DRWSTD category	Description	Type	V5 Name	Description	Values	Changeable in the properties of each dimension	
DECIMAL OR FRACTIONAL REMAINDER	POSITION Y Decimal Rest Positioning vertical Offset				HARD CODED	No	
	POSITION Y Fractional Rest Positioning vertical Offset		Real	NDRestY		No	
	REMAINDER HEIGHT Height of the remainder		Real	NDResScl (Fractional Rest Height Ratio)		No	
	ZERO VALUE DISPLAY Way to display the 0 10.00 or 10				HARD CODED	No	
DECIMAL REMAINDER	ZERO DISPLAY Display of trailing zeros		[YES/NO]	If the value is made of one term: NDFinZer	¹ 60,25 cm ² 60,250 cm	[1/2] 1 = No display of trailing zeros. 2 = Display of trailing zeros (number of digits specified in the value position).	No
	DECIMAL SEPARATOR Separator character for decimal 6,25 or 6.25 or...		Char: To be defined.	NDSepNum		To be defined in the 18 available characters	No

V4				V5			
DRWSTD category	Description	Type	V5 Name	Description	Values	Changeable in the properties of each dimension	
FRACTIONAL REMAINDER	POSITION X Fractional rest Positioning horizontal Value			NDRestX		Real	No
	LAST SEPARATOR POSITION Position of last term Unit.		before or after the fractionnal rest.	NDSepDen		[1/2] 1 = Before fractionnal rest, 2 = After fractionnal rest.	No
	FRACTION DISPLAY Fractional rest Display Mode		Side by side or super-imposed.	NDTypFrac		[1/2] 1 = Side by side, 2 = Super-imposed.	No
	D Offset between Fractionnal Rest Numerator and denominator		real (ratio to the character height)	NDOperY		Real	No
	FRACTIONAL REMAINDER		Left, center or right.	NDAAlignFrac		[1/2/3] 1 = Left, 2 = Center, 3 = Right,	No

4.3 Dimensions : Tolerancing

V4				V5		
DRWSTD category	Description	Type	V5 Name	Description	Values	
TOLERANCE NAME	User defined name used as the description identifier	String	TolName		String (8 characters).	
TOLERANCE TYPE	Define the tolerance format	To be chosen in the proposed table	TolType			[1.../7] 1 => NUM1, 2 => NUM2, 3 => RES1, 4 => RES2, 5 => ALP1, 6 => ALP3, 7 => ALP2.
CHARACTER SIZE RATIO		Real	TolScale		Real	
SYMBOL BEFORE	Separator for Tolerances (before the value)	Char to be chosen in the proposed table	TolSepar_1 and TolSepTo1 for NUM1, RES1 and ALP2		To be defined in the characted table.	
SYMBOL AFTER	Separator for Tolerances (after the value)	Char to be chosen in the proposed table	TolSepar_2 and TolSepTo3 for NUM1, RES1 and ALP2		To be defined in the characted table.	
SEPARATOR	Separator between the 2 values (For NUM1, RES1, ALP2)	Char to be chosen in the proposed table	TolSepTo_2		To be defined in the characted table.	

V4			V5			
DRWSTD category	Description	Type	V5 Name	Description	Values	
SYMBOL	Separator Character size (Ratio between Separator Character and value text font sizes) (For NUM1, RES1, ALP2)		Real	TolSymbolH		Real
IDENTICAL VALUE DISPLAY	FOR NUM1, NUM2 Display of identical tolerance Values		Choice 1 or 2	TolMergeSame		1 = Display common value, 2 = Display separate values.
	FOR ALP3 Fraction line on super-imposed tolerances		Choice 1 or 2	TolFracLine		YES or NO
ENDING ZERO DISPLAY	FOR NUM1, NUM2, RES1, RES2 Display of tolerances trailing zeros		To be chosen in one of the 3 proposals	TolTrailing		0 = Display of the 0, 1 = No display of the 0, 2 = Same display as dimension
ZERO TOLERANCE DISPLAY	FOR NUM1, NUM2 Display of null tolerance values		To be chosen in one of the 3 proposals	TolShowNull		1 = Display of the 0 with sign, 2 = Display of the 0 without sign, 3 = No display of the 0.
POSITIONNING (FOR NUM2, ALP3)	X1 Offset between dimension value and tolerance		Ratio of the height	TolExtX		(mm)
	Tolerance Position anchor Point (for offset computing)		Reference point to be chosen	TolPtOnValue		7 = Top, 8 = Middle, 9 = Bottom
	Tolerance Position anchor Point (for offset computing)		Reference point to be chosen	TolAnchorPT		1 = Top, 2 = Middle, 3 = Bottom
	Y1 Offset between dimension value and tolerance		Ratio of the height	TolExtY		(mm)

V4			V5			
DRWSTD category	Description	Type	V5 Name	Description	Values	
	Y2 Offset between the 2 tolerance values		Ratio of the height	TolIntY		(mm)
POSITIONNING (FOR NUM1, ALP2)	X1 Offset between dimension value and tolerance		Ratio of the height	TolExtX		(mm)
	X2 Offset between the 2 tolerance values		Ratio of the height	TolIntX		(mm)
POSITIONNING (FOR NUM1, ALP1)	X1 Offset between dimension value and tolerance		Ratio of the height	TolExtX		(mm)
	Y1 Offset between the 2 tolerance values		Ratio of the height	TolExtY		(mm)
POSITIONNING (FOR RES1)	X2 Offset between the 2 tolerance values		Ratio of the height	TolIntX		(mm)
POSITIONNING (FOR RES2)	Y2 Offset between the 2 tolerance values		Ratio of the height	TolIntY		(mm)