

## Version History

Date	Version	Description
2017-05-02	1.0	First version

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# GTC Package Description

## 1 Purpose

This document has the purpose to provide additional information to the GTC Package specification ([File Table](#)). This document contains:

- Explications concerning meaning and content of elements and attributes in XML Schema Files
- Information concerning the relation of different GTC documents (needed for GTC Format implementation and published on [gtc-tools.com](http://gtc-tools.com))

*Remark:* Format descriptions like DateTime- or URI-format are in the GTC Package specification itself.

## 2 Published Core GTC Documents

All documents needed for the GTC Format implementation are published on the GTC Website [gtc-tools.com](http://gtc-tools.com) maintained by NTB, Buchs, Switzerland.

Table 1: GTC Core Documents

Table 1 shows the documents and links provided on the GTC website.

*Remark:* You must be registered (free registration) to see the documents.

### Document Relations

- A. The spreadsheets *GTC generic class hierarchy* and *GTC property definition* are connected by the field "GTC class".
- B. The document *GTC Package Description* relates to definitions in document *GTC Package Specification*.

Document	Description	Location
GTC generic class hierarchy (spreadsheet)	Base file for the creation of the GTC vendor class hierarchy.	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: GTC Release
GTC property definition (spreadsheet)	This file is a GTC data interface and defines ISO 13399 Schema and Cutting Tool Library (PLIB) attributes, which are assigned to GTC classes.	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: GTC Release

GTC Package Specification (PDF)	Specification for content, file and folder structure and file formats of GTC package.	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: GTC Format Specification
GTC Package Description (PDF)	The file that you are reading is a complement to the GTC Package Specification which provides description of: - expected <i>GTC vendor hierarchy</i> data - relation between files in the GTC Package	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: GTC Format Specification
GTC mapping rule specification (PDF)	The file explains meaning and use of GTC mapping rules.	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: GTC Format Specification
GTC Schema_Class_Hierarchy_Vendor.xsd	1 of the XML Schema files in zip file XSD-Schemas	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: GTC Format Specification

Table 1: GTC Core Documents

### 3 Published GTC Package Samples

On the download site of [gtc-tools.com](http://gtc-tools.com) different links to sample GTC Packages can be found. Further samples of different Cutting Tool Vendors are very welcome (web links to GTC Package samples can be sent to [askntb@gtc-tools.com](mailto:askntb@gtc-tools.com)).

Document	Description	Location
GTC 2.0 Package sample	Provided by Sandvik Coromant.	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: Vendor specific GTC Material
GTC 1.0 Package for Adveon Tool Library	Provided by Sandvik Coromant. (Version 1.0: Different versions for different receiving systems)	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: Vendor specific GTC Material
GTC 1.0 Package for Siemens Teamcenter MRL	Provided by Sandvik Coromant. (Version 1.0: Different versions for different receiving systems)	<a href="http://gtc-tools.com">gtc-tools.com</a> Menu: GTC Download Latest Working Documents Section: Vendor specific GTC Material

Table 2: Published Links to GTC Package Samples

## 4 Explications about GTC Package Specification Issues

The GTC Package Specification defines:

- the content for the folder structure
- the XML schemas for different files
- data formats

The specification shall be restricted to this information to keep it simple. Further information is therefore collected in this description document. Chapter 4 is based on the structure in the GTC Package Specification.

Specification: [GTC\\_Class\\_Hierarchy\\_Vendor.xml](#)

### Meaning

The GTC vendor hierarchy is based on the GTC generic hierarchy. This generic structure enables a Software System to display Cutting Tools of different Tool Vendors in the same structure.

### Creation

From GTC Package Version 2.0 onwards, the file *GTC\_class\_hierarchy\_vendor* is specified in xml format. Vendors can still use the spreadsheet *GTC generic class hierarchy* as a base for the vendor hierarchy. The GTC Hierarchy Checker and Converter Tool ([askntb@gtc-tools.com](mailto:askntb@gtc-tools.com)) can be used to convert the spreadsheet *GTC\_class\_hierarchy\_vendor* into xml format.

### Find Files

All mentioned files are listed in **Table 1**.

### Definition and Explication

All attributes and elements of XML Schema GTC Schema\_Class\_Hierarchy\_Vendor.xsd are listed in the following section. Each description contains a D and an E Block.

- D for Definition: According to GTC Package Specification ([File Table](#))
- E for Explication: Explication about different **Issues**

### Attributes

	<a href="#">gtc_generic_hierarchy_version</a>
D	The GTC generic hierarchy version used as a base for this GTC vendor hierarchy. Numerical format only, (e.g. '1.7', '1.10').
E	<b>Purpose:</b> The receiving system has to know, which GTC classes and therefore which version of the generic hierarchy to expect. <b>Find File:</b> See <a href="#">File Table</a> .

	<u>gtc_vendor_hierarchy_version</u>
D	Vendor specific versioning. Numerical format only, (e.g. '14.2', '14.3.1'). Larger number = newer version.
E	<b>Purpose:</b> A vendor hierarchy version labels a set of products, inserted in a hierarchy based on a specific <i>GTC generic hierarchy version</i> . Thus, the vendor and his partners can refer to a specific <i>GTC generic hierarchy version</i> and therefore to a specific content.

	<u>plib_version</u>
D	Plib version used as a base for plib classes in the GTC package (product files). Example: 0112/1///13399_002
E	<b>Current Plib version:</b> The current Plib version was released in 2008. <b>Purpose:</b> To state on which Plib version a <i>GTC vendor hierarchy</i> is based on. "Insert Interface Codes" and "Connection Codes" <sup>1</sup> on machine and workpiece side are used in the GTC vendor hierarchy and defined in the Plib. The version is also used in the product file to state the source of class definitions. <b>Analyse of Plib version id:</b> '0112/1' stands for 'ISO'; '13399' for 'Cutting tool data representation and exchange', '002' for the revision. (This is the detail level provided by the ISO Committee). (See Annex B)

	<u>time_stamp</u>
D	The time when the hierarchy file is created. Format: <a href="https://www.w3.org/TR/xmlschema-2/#dateTime">https://www.w3.org/TR/xmlschema-2/#dateTime</a> .
E	<b>Format:</b> All DateTime fields within GTC Package documents have the following format: "YYYY-MM-DDThh:mm:ss". <b>Example:</b> 2016-11-16T14:58:00

## GTC class elements

	<u>id</u>								
D	Matches the <i>GTC_vendor_id</i> in file <i>GTC generic hierarchy</i> .								
E	<b>Purpose:</b> The id is a unique string to identify the GTC class for machine-readable purposes. <b>Validity:</b> A valid id in <i>GTC_Class_Hierarchy_Vendor</i> is based on a <i>GTC_vendor_id</i> in spreadsheet <i>GTC_generic_class_hierarchy</i> (See <a href="#">File Table</a> ).  <b>Examples:</b> <table border="1" data-bbox="263 1261 1390 1648"> <thead> <tr> <th>id</th> <th>Example</th> </tr> </thead> <tbody> <tr> <td>BASECLASS  E: Class where products allowed = 'true' because properties (<a href="#">File Table</a>) are assigned to base classes</td> <td>MILSQI</td> </tr> <tr> <td>BASECLASS_W[insert_concept]  E: Base class with Insert interface connection on workpiece side</td> <td>MILSQI_WISO\$</td> </tr> <tr> <td>BASECLASS_W[insert_concept]_M[connect_mach]  E: Base class with Insert interface connection on workpiece side and connection code on machine side</td> <td>MILSQI_WISO\$\$_MFDA12</td> </tr> </tbody> </table> <b>Remark:</b> Adapter classes always meet the pattern: BASECLASS_M[insert_concept]_W[connect_mach] while Non-Adaptor classes always meet the pattern: BASECLASS_W[insert_concept]_M[connect_mach]. (GTC Hierarchy Checker: A warning is thrown if the pattern should be switched)	id	Example	BASECLASS  E: Class where products allowed = 'true' because properties ( <a href="#">File Table</a> ) are assigned to base classes	MILSQI	BASECLASS_W[insert_concept]  E: Base class with Insert interface connection on workpiece side	MILSQI_WISO\$	BASECLASS_W[insert_concept]_M[connect_mach]  E: Base class with Insert interface connection on workpiece side and connection code on machine side	MILSQI_WISO\$\$_MFDA12
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<sup>1</sup> See ISO Document 13399 Part 60 ([Reference dictionary for connection systems \[TS\]](#))

parent_id									
D	Matches GTC_vendor_parent_id in file <i>GTC_generic_hierarchy</i> .								
E	<p><b>Purpose:</b> Definition of a consistent hierarchy.</p> <p><b>Validity:</b> The parent_id is defined according to id, because it is the id of the parent class. A valid parent_id in <i>GTC_Class_Hierarchy_Vendor</i> is based on a GTC_vendor_id in spreadsheet <i>GTC_generic_class_hierarchy</i> (See <a href="#">File Table</a>)</p> <p><b>Remark:</b> The parent of the hierarchy root* must be 'GTC_Root'.</p> <p><b>Example:</b> See all GTC classes in a hierarchy path from hierarchy root to a product class; explained according to class type (class type is a column of spreadsheet <i>latest GTC_generic_class_hierarchy</i> (Se <a href="#">File Table</a>))</p> <table border="1"> <thead> <tr> <th>id</th> <th>parent_id</th> </tr> </thead> <tbody> <tr> <td><u>Class type: 'gtc-root'</u> CTL TL MIL MILSQ</td> <td>(parent is of class type 'gtc-root' GTC_Root (hierarchy root*) CTL TL MIL parent is of class type 'gtc-root'</td> </tr> <tr> <td><u>Class type: 'GTC-BASE'</u> MILSQI</td> <td>MILSQ</td> </tr> <tr> <td><u>Class type: 'GTC-SUB'</u> MILSQI_WISO\$\$ MILSQI_WISO\$\$_MFDA12</td> <td>parent is of class type 'gtc-base' or 'GTC-SUB' MILSQI (class type 'gtc-base') MILSQI_WISO\$\$ (class type 'GTC-SUB')</td> </tr> </tbody> </table>	id	parent_id	<u>Class type: 'gtc-root'</u> CTL TL MIL MILSQ	(parent is of class type 'gtc-root' GTC_Root (hierarchy root*) CTL TL MIL parent is of class type 'gtc-root'	<u>Class type: 'GTC-BASE'</u> MILSQI	MILSQ	<u>Class type: 'GTC-SUB'</u> MILSQI_WISO\$\$ MILSQI_WISO\$\$_MFDA12	parent is of class type 'gtc-base' or 'GTC-SUB' MILSQI (class type 'gtc-base') MILSQI_WISO\$\$ (class type 'GTC-SUB')
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node_name																	
D	Matches GTC_vendor_node_name in file <i>GTC_generic_hierarchy</i> .																
E	<p><b>Purpose:</b> The node_name labels the node within the <u>hierarchy context</u> (case: the hierarchy is displayed in an application). Either matches GTC_vendor_node_name in spreadsheet <i>GTC_generic_hierarchy</i> or a vendor specific node name. A human-readable name.</p> <p><b>Format:</b> String that should not exceed 100 characters.</p> <p><b>Example:</b></p> <table border="1"> <thead> <tr> <th>id</th> <th>node_name</th> </tr> </thead> <tbody> <tr> <td>CTL</td> <td>Cutting tool library</td> </tr> <tr> <td>TL</td> <td>Tool item</td> </tr> <tr> <td>MIL</td> <td>Milling cutter</td> </tr> <tr> <td>MILSQ</td> <td>Shoulder face mill</td> </tr> <tr> <td>MILSQI</td> <td>indexable</td> </tr> <tr> <td>MILSQI_WISO\$\$</td> <td>Square (S)</td> </tr> <tr> <td>MILSQI_WISO\$\$_MFDA12</td> <td>Vendor specific node name</td> </tr> </tbody> </table>	id	node_name	CTL	Cutting tool library	TL	Tool item	MIL	Milling cutter	MILSQ	Shoulder face mill	MILSQI	indexable	MILSQI_WISO\$\$	Square (S)	MILSQI_WISO\$\$_MFDA12	Vendor specific node name
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node_name...language	
D	Use alpha-3 code as specified in ISO 639-2 (e.g. 'eng' for English, 'swe' for Swedish).
E	Define the standardized language for the node_name.

preferred_name																										
D	Matches GTC_vendor_preferred_name in file <i>GTC_generic_hierarchy</i> .																									
E	<p><b>Purpose:</b> Long descriptive class name that can be used outside the hierarchy context. A human-readable name.</p> <p><b>Format:</b> String that should not exceed 250 characters.</p> <p><b>Example:</b></p> <table border="1"> <thead> <tr> <th>id</th> <th>node_name</th> <th>preferred_name</th> </tr> </thead> <tbody> <tr> <td>CTL</td> <td>Cutting tool library</td> <td>Cutting tool library</td> </tr> <tr> <td>TL</td> <td>Tool item</td> <td>Tool item</td> </tr> <tr> <td>MIL</td> <td>Milling cutter</td> <td>Milling cutter</td> </tr> <tr> <td>MILSQ</td> <td>Shoulder face mill</td> <td>Shoulder milling cutter</td> </tr> <tr> <td>MILSQI</td> <td>indexable</td> <td>Shoulder milling cutter - indexable</td> </tr> <tr> <td>MILSQI_WISO\$\$</td> <td>Square (S)</td> <td>Shoulder milling cutter - indexable - Square (S)</td> </tr> <tr> <td>MILSQI_WISO\$\$_MFDA12</td> <td>Vendor specific node name</td> <td>Vendor specific preferred name</td> </tr> </tbody> </table>		id	node_name	preferred_name	CTL	Cutting tool library	Cutting tool library	TL	Tool item	Tool item	MIL	Milling cutter	Milling cutter	MILSQ	Shoulder face mill	Shoulder milling cutter	MILSQI	indexable	Shoulder milling cutter - indexable	MILSQI_WISO\$\$	Square (S)	Shoulder milling cutter - indexable - Square (S)	MILSQI_WISO\$\$_MFDA12	Vendor specific node name	Vendor specific preferred name
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	<a href="#">preferred_name... language</a>
D	Use alpha-3 code as specified in ISO 639-2 (e.g. 'eng' for English, 'swe' for Swedish).
E	Define the standardized language for the preferred_name.

	<a href="#">modified_date</a>
D	The latest modified date
E	<b>Purpose:</b> To show the date when this GTC class was last updated. <b>Format:</b> Common GTC Package DateTime format (See <a href="#">DateTime Format</a> ) <b>Example:</b> 2016-11-16T14:58:00

	<a href="#">mapping_rule</a>
D	Can be used to support the mapping of products to GTC node.
E	<b>Purpose:</b> Support for creation of <i>GTC_Class_Hierarchy</i> . The mapping rules are specified in the file GTC mapping rule specification (See <a href="#">File Table</a> . In case the mapping rules are missing, they need to be updated because of hierarchy changes and will be inserted after update)

	<a href="#">sort_level</a>																																												
D	To specify the order of children for each parent. Classes with smaller numbers are presented before classes with larger numbers.																																												
E	<b>Format:</b> A number (Integer). <b>Example:</b> GTC classes below class id 'TL' are numbered in steps of 10 on each level.																																												
	<table border="1"> <thead> <tr> <th>id</th> <th>parent_id</th> <th>preferred_name</th> <th>Sort_level</th> </tr> </thead> <tbody> <tr> <td>CTL</td> <td>GTC_Root</td> <td>Cutting tool library</td> <td>10</td> </tr> <tr> <td>TL</td> <td>CTL</td> <td>Tool item</td> <td>10</td> </tr> <tr> <td>TRN</td> <td>TL</td> <td>Turning tool</td> <td>10</td> </tr> <tr> <td>MIL</td> <td>TL</td> <td>Milling cutter</td> <td>20</td> </tr> <tr> <td>DRL</td> <td>TL</td> <td>Drill</td> <td>30</td> </tr> <tr> <td>MILF</td> <td>MIL</td> <td>Face milling cutter</td> <td>40</td> </tr> <tr> <td>MILSQ</td> <td>MIL</td> <td>Shoulder milling cutter</td> <td>50</td> </tr> <tr> <td>MILSQI</td> <td>MILSQ</td> <td>Shoulder milling cutter - indexable</td> <td>100</td> </tr> <tr> <td>MILSQI_WISO\$\$</td> <td>MILSQI</td> <td>Shoulder milling cutter - indexable - Square (S)</td> <td>310</td> </tr> <tr> <td>MILSQI_WISO\$\$_MFDA12</td> <td>MILSQI_WISO\$\$</td> <td><i>Vendor specific preferred name</i></td> <td>1290</td> </tr> </tbody> </table>	id	parent_id	preferred_name	Sort_level	CTL	GTC_Root	Cutting tool library	10	TL	CTL	Tool item	10	TRN	TL	Turning tool	10	MIL	TL	Milling cutter	20	DRL	TL	Drill	30	MILF	MIL	Face milling cutter	40	MILSQ	MIL	Shoulder milling cutter	50	MILSQI	MILSQ	Shoulder milling cutter - indexable	100	MILSQI_WISO\$\$	MILSQI	Shoulder milling cutter - indexable - Square (S)	310	MILSQI_WISO\$\$_MFDA12	MILSQI_WISO\$\$	<i>Vendor specific preferred name</i>	1290
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	<a href="#">document list</a>
	<a href="#">Document</a>
	<a href="#">usage</a>
D	The usage of <a href="#">this</a> document (an image): valid entries are 'class_icon' or 'class_drawing'
E	<b>Purpose:</b> To ensure consistency between the <i>gtc_class_hierarchy_vendor</i> and the documents provided in the GTC Package. The receiving system has to know, whether a document has to be used as an icon or a drawing for this GTC class resp. this node.
	<a href="#">format</a>
D	File extension for <a href="#">this</a> document (an image). Recommended formats: see chapters for class_icon and class_drawing [in GTC format specification, See <a href="#">Find Files</a> ]
E	<b>Example:</b> .jpg
	<a href="#">file_name</a>
D	Simple file name.
E	<b>Example:</b> CTL.png or ADPRS_MHSK_WZYL.jpg
	<a href="#">location</a>
D	URI providing full path
E	<b>Example:</b> http://documents.toolvendor.com/images/ADPRS_MHSK_WZYL.jpg

## 5 Annex

### Annex A: W3C-Formats

#### A. DateTime Format

All DateTime fields have the following format: "YYYY-MM-DDThh:mm:ss"  
The W3C definition can be found [here](#).

#### B. URI Format

The Wiki Explication about URI (Unified Resource Identifier) on the base of W3C definition can be found [here](#)

### Annex B: PLIB information

<b>Name</b>	International Standards Organisation
<b>Code</b>	01121/1/13399
<b>E-mail</b>	iso@iso.ch
<b>Revision</b>	002
<b>Description</b>	Technical specification
<b>Telephone number</b>	+41227490111
<b>Facsimile number</b>	+41227340179
<b>Telex number</b>	
<b>Date of original definition</b>	2002-04-16
<b>Date of current version</b>	2002-04-16
<b>Date of current revision</b>	2002-04-16
<b>Internal location</b>	ISO Central Secretariat
<b>Street number</b>	1
<b>Street</b>	rue de Varembe
<b>Town</b>	Geneva
<b>Postal box</b>	
<b>Postal code</b>	1211
<b>Region</b>	
<b>Country</b>	Switzerland

More information will follow.