



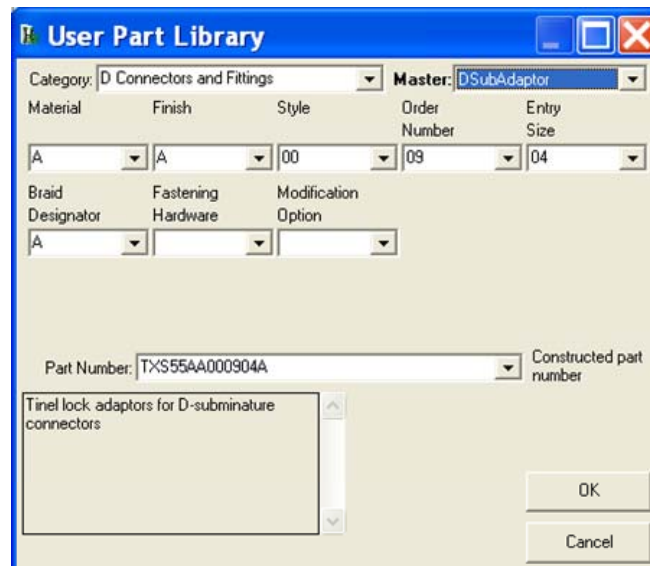
# HarnWare User Parts Library

## Overview

Non-standard parts that you use regularly can be held in the HarnWare User Parts Library. The Library can be used for:

- 1) **Coded part numbers.** Coded part numbering schemes are used for most TE Connectivity products and military connectors. In such schemes different characters in the part number are used to describe various aspects of the part, such as dimensions, materials and finishes. The number of individual part numbers that can be generated by such schemes is often very large. The User Parts Library provides a means of handling such part numbering schemes in a way that avoids the need to add all the individual part numbers into the database.
- 2) **Sequential or non-coded part numbers.** The User Parts Library also allows individual part numbers to be stored in the database along with design parameters that describe each part. This allows the user to search for a part number by entering all or a selection of the required design parameters. For example, part style, size, material and finish.
- 3) **Limited coded part numbering schemes.** The approach used for sequential part numbers can also be used for coded part numbering schemes where only certain combinations of options are available and when it is feasible to enter the valid part numbers into the database.

The User Parts Library contains examples of all three styles of part numbering schemes:



TXS D-subminiature connector adaptors is an example of a coded part numbering scheme.

The screenshot shows the 'User Part Library' dialog box with the following settings:

- Category: **D Connectors and Fittings**
- Master: **AMPLIMITE**
- Shell Size: 1
- Number of Contacts: 15
- Mounting: Standard
- Contacts: Crimp
- Shell Material: Steel
- Density: High
- Contact Size: 22
- Length: [blank]
- Width: [blank]
- Part Number: 204500-1 (4 matching part numbers)
- Description: Subminiature D Pin and Socket Connectors per MIL-C-24308 (AMPLIMITE)
- Image: A photograph of several AMPLIMITE connectors.

Amplimite D Subminiature Connectors is an example of sequentially numbered.

The screenshot shows the 'User Part Library' dialog box with the following settings:

- Category: **Bonding Leads**
- Master: **Bonding Leads 004**
- Product Standard: 004
- Plating Code: T
- Cross-Sectional Area mm<sup>2</sup>: 1.4
- Length (mm): 63
- Terminal/Stud Code: A
- Part Number: CFBA4199-004-T-1.4-63-A (1 matching part numbers)
- Description: EN4199-004 bonding leads are designed specifically for Aerospace and Military applications. They are ASD\* (formerly AECMA) approved and have undergone extensive mechanical and electrical testing, including flex testing to 250,000 cycles, sinusoidal and random vibration cycles and
- Image: A photograph of Cabletec bonding leads.

Cabletec Bonding Leads is an example of a limited coded part numbering scheme where only certain permutations of part number options are valid

## Using the Library

The HarnWare User Parts Library form is accessed via the command button in the User Balloon form. To construct a part number or to search for a part, select the part category and the master from those listed in the two combo-boxes. As each master is selected, descriptions, images and hyperlinks to documents containing further information will appear in the form if these have been defined in the User Parts Library database. The form can be enlarged to provide more space for viewing this extra information.

As each master is selected in the combo-box the parameters used to describe the part are loaded into combo-boxes. As each combo-box or individual parameter is selected a description, image and hyperlink information maybe displayed in the form. The master, parameter or part number to which the information relates is indicated by the label shown in bold. The hyperlink may reference a file on your local hard disc, a network drive or an internet web site.

If individual part numbers for the master are contained in the database, the number matching the selected parameters will be displayed and they will be listed in the part number combo-box. Each of the parameter combo-boxes include a blank at the top of the list so that a parameter can be ignored when searching. When an entry is selected in the part number combo-box the settings for all the parameters are selected in the parameter combo-boxes. A description, image and hyperlink may also be displayed for the individual part number if the database contains such references.

The user balloon form is accessed by opening a balloon shape in the Visio drawing or the Design Wizard or via the HarnWare Window>Parts menu. A command button in this form gives access to the HarnWare User Parts Library form

The Clear All command button selects blanks for all the parameters. This can provide a more useful starting point for a search than the defaults that are initially selected.

Where individual part numbers are not contained in the database, the parameter combo-boxes are used to construct a part number. As each option is selected the part number is updated to reflect the chosen options. In addition to the listed values you may also enter other values or edit the constructed part number. Obviously you need to ensure the options selected and any non-standard text entered form a valid combination and, therefore, a meaningful part number.

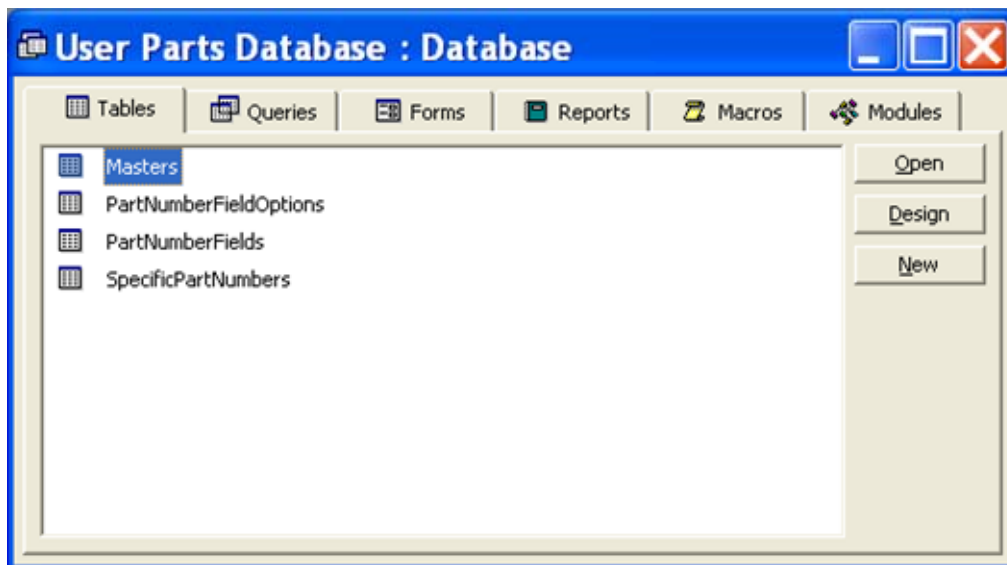
Clicking the OK command button causes the part number to be copied into the HarnWare Balloon form. Any description, specification and remarks associated with the selected part master are also copied into the Balloon form. If data is subsequently saved to the balloon shape in the drawing, the part number parameter settings are also saved. These maybe viewed in the Design Wizard and they are also used to select the default part number parameters if the User Parts Library form is opened again for that Balloon shape.

Clicking the Cancel command button simply unloads the User Part Library form without saving any data.

### Database Structure


A copy of Microsoft Access 97, or later, is all that is required if you wish to add part numbers and part numbering schemes into the User Parts Library.

The database is held in the User Parts Library folder under the C:\Documents and Settings\User Name\Application Data\Tyco Electronics\HarnWare. Where <User Name> is the local user name. This folder can also be used for any image files and documents you wish to reference or hyperlink to, although the files can be on any other disc drive or Internet web site.



On opening the database in Microsoft Access you will see that it comprises four tables:

The following is an example of entering a coded part numbering scheme into the User Parts database using the EN4199-004 Bonding Leads datasheet shown below.



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### EN4199-004 Bonding Leads

EN4199-004 bonding leads are designed specifically for Aerospace and Military applications. They are ASCP (formerly AZCMA) approved and have undergone extensive mechanical and electrical testing, including flex testing to 250,000 cycles, sinusoidal and random vibration cycles and salt mist testing.

EN4199-004 bonding leads are manufactured from multi-layer round braid and are available in tin plated and nickel plated copper in a variety of cross-sectional areas, lengths and termination options.

**Applications**  
 Military/Aerospace  
 Airframe  
 Equipment bonding  
 Lightning protection

**Materials**  
 Tin-plated Copper -95°C to +100°C  
 Nickel-plated Copper -95°C to +200°C

\*Aerospace and Defense Industries Association of Europe (ASD) approved

**Part Numbering System**

CFBA4199 - XXX - X - XXX - XXX - X


Terminal/Stud code  
See tables on right

Length (mm)  
See tables on right

Cross-sectional area  
1.4mm<sup>2</sup>, 3.0mm<sup>2</sup>, 4.5mm<sup>2</sup>, 7.0mm<sup>2</sup>, 13.0mm<sup>2</sup>

Plating code  
T = Tin  
N = Nickel

Product standard  
004 = EN4199-004



**EN4199-004 Bonding Leads**

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**Ordering Example**  
 CFBA4199-004-T-7.0-250-0 = EN4199 Round braid, tin plated copper, 7.0mm<sup>2</sup>, 250mm long, terminal vector 0.

**Performance Testing**  
 EN4199-004 bonding leads have been fully tested to the following in accordance with EN4199-004:

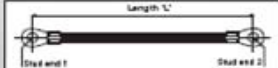
Sinusoidal and random vibration  
 Mechanical fatigue (250,000 cycles)  
 Salt mist (NH<sub>4</sub>)  
 Temperature endurance (20hrs)  
 Rapid temperature cycling  
 Terminal ageing by temperature and current cycling  
 Voltage drop  
 Tensile strength

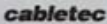
**Standard Available Lengths**

Length (mm)	Availability for cross-sectional area (mm <sup>2</sup> )				
	1.4mm <sup>2</sup>	3.0mm <sup>2</sup>	4.5mm <sup>2</sup>	7.0mm <sup>2</sup>	13.0mm <sup>2</sup>
50	✓	✓	✓	✓	✓
80	✓	✓	✓	✓	✓
100	✓	✓	✓	✓	✓
125	✓	✓	✓	✓	✓
150	✓	✓	✓	✓	✓
200	✓	✓	✓	✓	✓
250	✓	✓	✓	✓	✓
315	✓	✓	✓	✓	✓
400	✓	✓	✓	✓	✓
500	✓	✓	✓	✓	✓
600	✓	✓	✓	✓	✓
900	✓	✓	✓	✓	✓

**Terminal/Stud Codes**

Code	End 1		End 2		Availability for cross-sectional area (mm <sup>2</sup> )				
	Stud Size	Character	Stud Size	Character	1.4mm <sup>2</sup>	3.0mm <sup>2</sup>	4.5mm <sup>2</sup>	7.0mm <sup>2</sup>	13.0mm <sup>2</sup>
A	#6	3.05	#6	3.30	✓	✓	✓	✓	✓
B	#6	2.17	#6	2.30	✓	✓	✓	✓	✓
C	#10	2.62	#6	2.30	✓	✓	✓	✓	✓
D	1/8	2.25	#6	2.30	✓	✓	✓	✓	✓
E	#6	2.17	#6	2.17	✓	✓	✓	✓	✓
F	#10	2.62	#6	2.17	✓	✓	✓	✓	✓
G	1/8	2.25	#6	2.17	✓	✓	✓	✓	✓
H	#10	2.62	#10	2.62	✓	✓	✓	✓	✓
J	1/8	2.25	#10	2.62	✓	✓	✓	✓	✓
K	1/8	2.25	1/8	2.25	✓	✓	✓	✓	✓
L	5/16	7.64	#10	2.62	✓	✓	✓	✓	✓
M	5/16	7.64	5/16	7.64	✓	✓	✓	✓	✓
N	5/16	7.64	1/8	2.25	✓	✓	✓	✓	✓



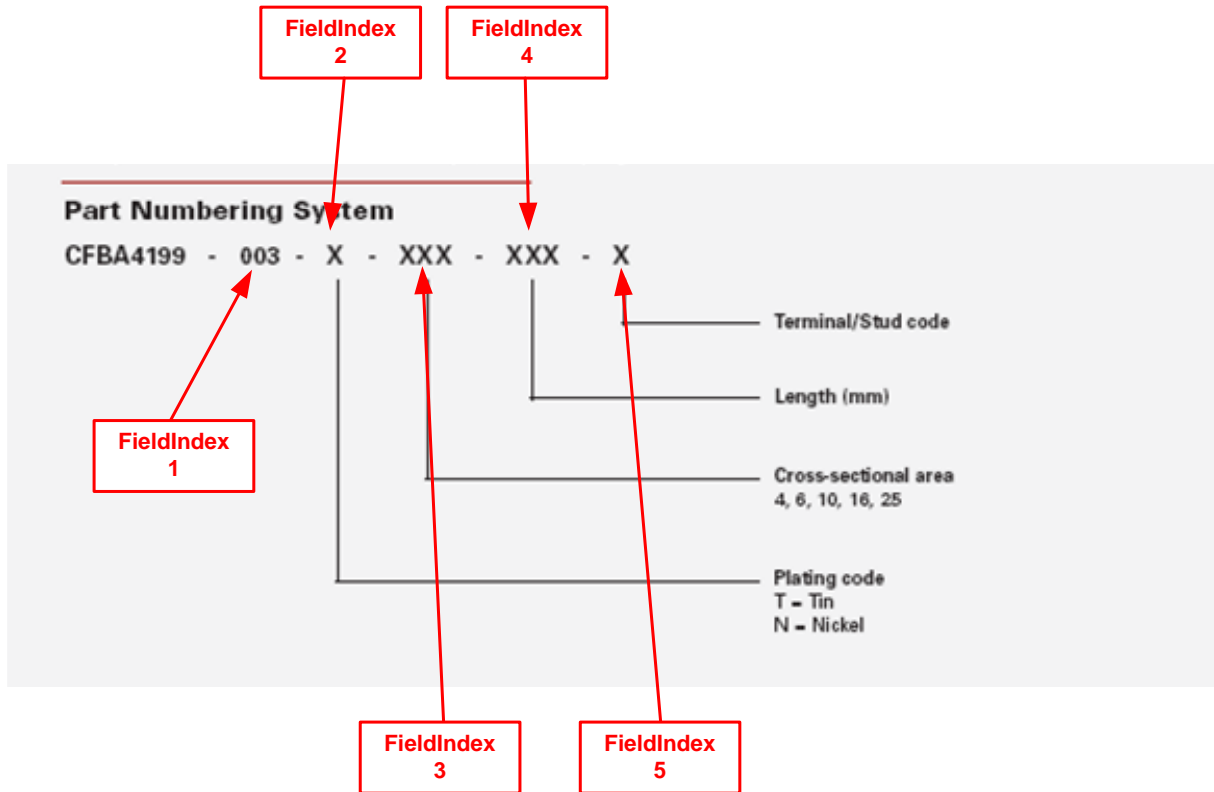


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Product Specification Since 1993 Sheet 02/08



For the following example the part to be added has 5 Part Number Fields

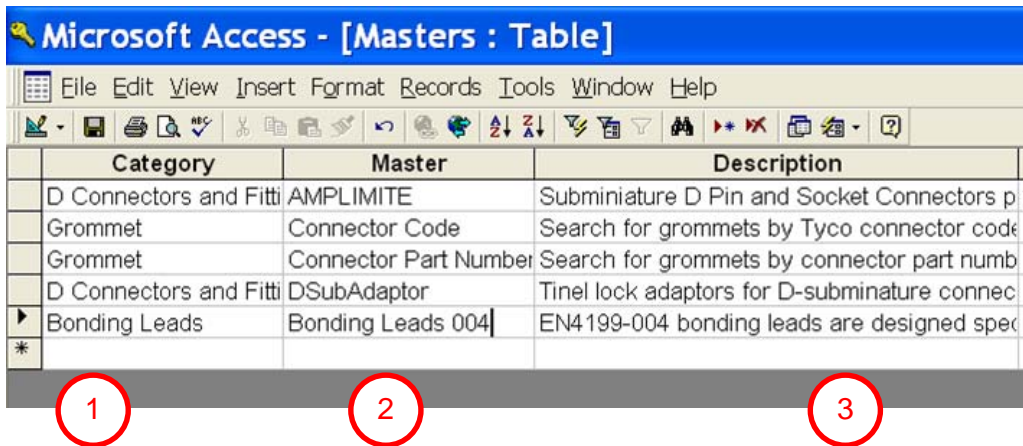


1) **Masters** This table contains records for each different part numbering scheme, or master. The master name is used to relate the records in all four tables and should, therefore, be carefully chosen to be meaningful and unique. As you click on each field in this and the other tables, a brief description of the field is output in the Microsoft Access status bar. PartsListCode controls where the part appears in parts lists. See 'Part Codes for Parts Listing' in the HarnWare help system for details. The parts list description and Spec/Remarks are the texts copied into the HarnWare Balloon form for saving into the balloon shape and that are extracted by the Parts Lister.

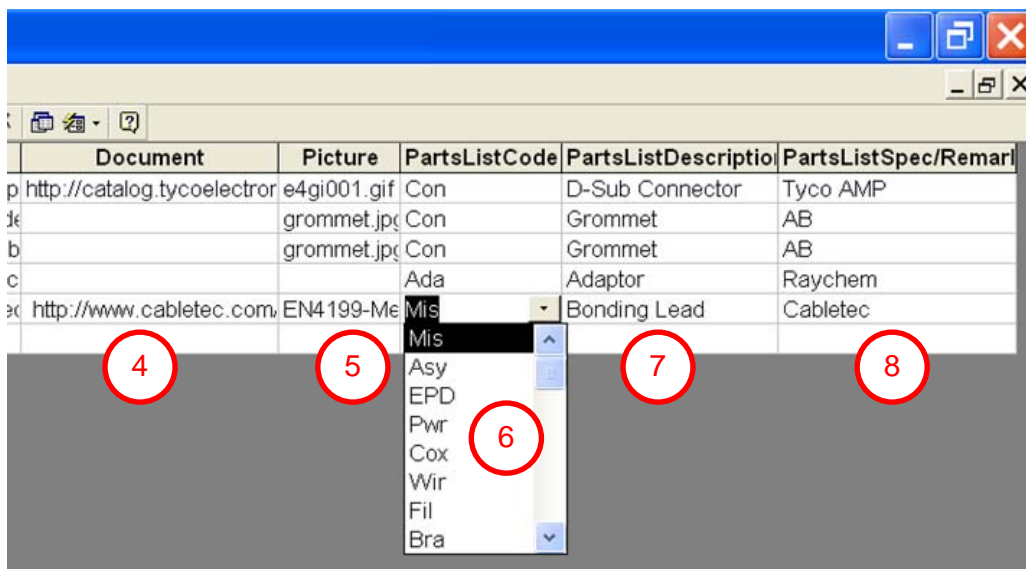
Open the default Masters Table

Category	Master	Description	Document	Picture
D Connectors and Fitti	AMPLIMITE	Subminiature D Pin and Socket Connectors p	http://catalog.tycoelectronics.com/TE/bin/TE.Connect?C=11408:	e4gi001
Grommet	Connector Code	Search for grommets by Tyco connector code		gromme
Grommet	Connector Part	Search for grommets by connector part numb		gromme
D Connectors and Fitti	DSubAdaptor	Tinel lock adaptors for D-subminiature connec		

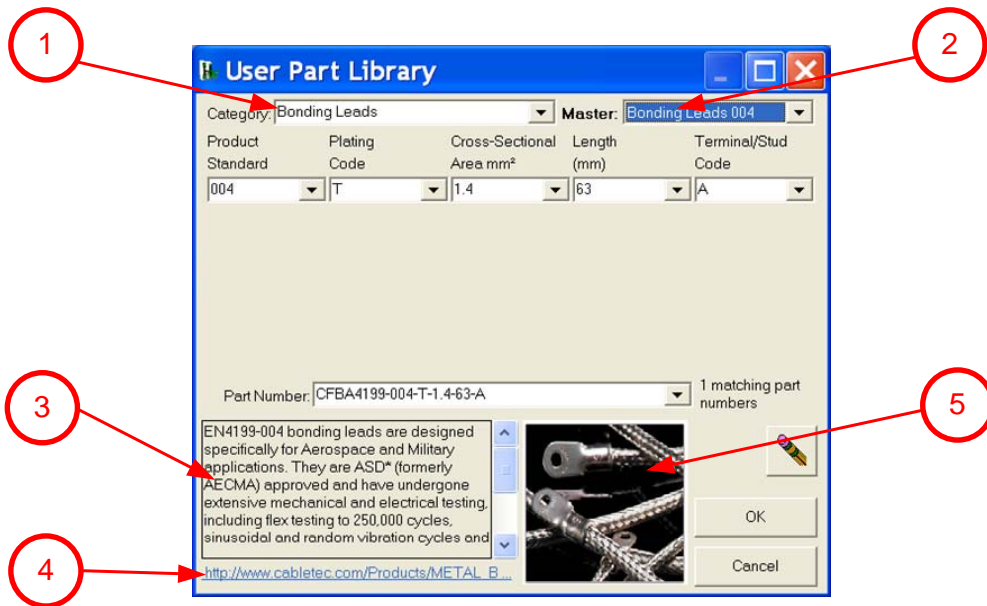
Add text for new Category, Master and Description  
 Note: The Master column text must not be duplicated in other rows



Add link to any Documents, add file name for Picture, use drop down menu for Parts List Code, Add text for Parts List Description, add text for Parts List Spec/Remarks.



Refer to Page 8 for balloon references



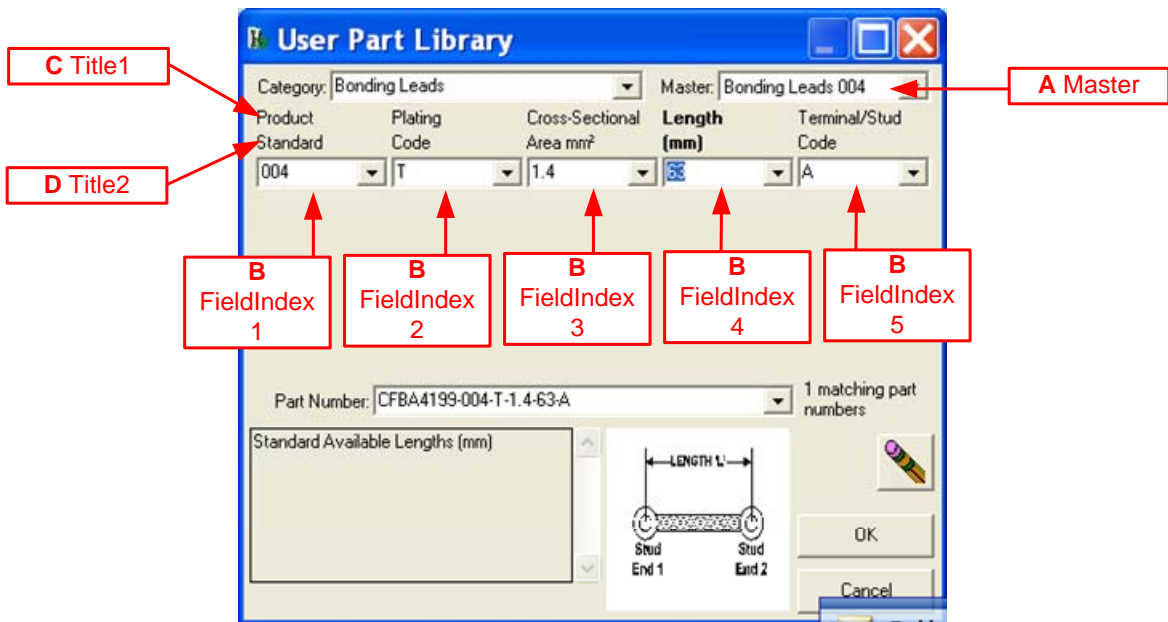
PARTS LIST					
ITEM	DESCRIPTION	PART NUMBER	SPEC/REMARKS	QTY	UNIT
1	Bonding Lead	CFBA4199-004-T-1.4-63-A	Cabletec	1	Pc

? Refer to Page 7 for balloon references

2) **PartNumberFields** This table contains records for each parameter used to construct the part number or to search for part numbers. The Prefix and Suffix fields are only used for constructing part numbers and are not required for masters that have part numbers stored in the Specific Part Numbers table. The Units and Tolerance fields are only relevant to numeric parameters for masters with records in the Specific Part Numbers table.

Master	FieldIndex	FieldName	Title1	Title2	Prefix
Bonding Leads 004	1	ProdStd	Product	Standard	CFBA4199-
Bonding Leads 004	2	Plating	Plating	Code	-
Bonding Leads 004	3	CrossSect	Cross-Sectional	Area mm²	
Bonding Leads 004	4	Length	Length	(mm)	
Bonding Leads 004	5	Terminal	Terminal	Code	





3) **PartNumberFieldOptions** This table contains records for each value of each parameter or the default value for a parameter with a ValueList in the Part Number Fields table.

For this example from the datasheet

Standard Available Lengths

Length (mm)	Availability for cross-sectional area (mm <sup>2</sup> )				
	1.4mm <sup>2</sup>	3.5mm <sup>2</sup>	4.5mm <sup>2</sup>	7.0mm <sup>2</sup>	15.0mm <sup>2</sup>
65	✓			✓	
80	✓	✓	✓	✓	✓
100	✓	✓	✓	✓	✓
125	✓	✓	✓	✓	✓
160	✓	✓	✓	✓	✓
200	✓	✓	✓	✓	✓
250	✓	✓	✓	✓	✓
315	✓	✓	✓	✓	✓
400	✓	✓	✓	✓	✓
500				✓	
650				✓	
800				✓	

Terminal/Stud Codes

Code	End 1 Stud Size	Diam (mm)	Diameter (mm)	Availability for cross-sectional area (mm <sup>2</sup> )				
				1.4mm <sup>2</sup>	3.5mm <sup>2</sup>	4.5mm <sup>2</sup>	7.0mm <sup>2</sup>	15.0mm <sup>2</sup>
A	#6	3.17	3.50	✓	✓	✓		
B	#6	4.17	3.50	✓	✓	✓		
C	#10	4.83	3.50	✓	✓	✓		
D	1/4	6.35	3.50	✓	✓	✓		
E	#6	4.17	4.17	✓	✓	✓	✓	
F	#10	4.83	4.17	✓	✓	✓	✓	
G	1/4	6.35	4.17	✓	✓	✓	✓	
H	#10	4.83	4.83	✓	✓	✓	✓	✓
J	1/4	6.35	4.83	✓	✓	✓	✓	✓
K	1/4	6.35	6.35	✓	✓	✓	✓	✓
L	5/16	7.94	4.83	✓	✓	✓	✓	✓
M	5/16	7.94	5.16	✓	✓	✓	✓	✓
N	5/16	7.94	1/4	6.35	✓	✓	✓	✓

Microsoft Access - [PartNumberFieldOptions : Table]

Master	FieldName	Sort	Value	Default	Description
Bonding Leads 004	CrossSect	1	1.4	<input type="checkbox"/>	Available Cross-Sectional Area
Bonding Leads 004	CrossSect	5	13.0	<input type="checkbox"/>	Available Cross-Sectional Area
Bonding Leads 004	CrossSect	2	3.5	<input type="checkbox"/>	Available Cross-Sectional Area
Bonding Leads 004	CrossSect	3	4.5	<input type="checkbox"/>	Available Cross-Sectional Area
Bonding Leads 004	CrossSect	4	7.0	<input type="checkbox"/>	Available Cross-Sectional Area
Bonding Leads 004	Length	3	100	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	4	125	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	5	160	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	6	200	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	7	250	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	8	315	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	9	400	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	10	500	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	1	63	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	11	630	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	2	80	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Length	12	800	<input type="checkbox"/>	Standard Available Lengths (mm)
Bonding Leads 004	Plating	2	N	<input type="checkbox"/>	Nickel Plated Copper -65°C to +200°C
Bonding Leads 004	Plating	1	T	<input checked="" type="checkbox"/>	Tin Plated Copper -65°C to +150°C
Bonding Leads 004	Terminal	1	A	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	2	B	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	3	C	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	4	D	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	5	E	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	6	F	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	7	G	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	8	H	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	9	J	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	10	K	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	11	L	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	12	M	<input type="checkbox"/>	Terminal Code
Bonding Leads 004	Terminal	13	N	<input type="checkbox"/>	Terminal Code

Annotations in the table image:

- CrossSect Sort x 5 Options**: Points to the first five rows (CrossSect).
- Length Sort x 12 Options**: Points to the next twelve rows (Length).
- Terminal Sort x 13 Options**: Points to the last thirteen rows (Terminal).
- Description for each FieldName**: Points to the Description column.

User Part Library

Category: Bonding Leads | Master: Bonding Leads 003

Product Standard: 003 | Plating Code: T | Cross-Sectional Area mm<sup>2</sup>: 4.0 | Length (mm): [input] | Terminal/Stud Code: S

Part Number: CFBA4199-003-N-10.0-100-F | 136 matching part numbers

Standard Available Lengths (mm)

Diagram: Stud End 1 --- LENGTH L --- Stud End 2

Buttons: OK, Cancel

Annotation: **Description for each FieldName** points to the 'Standard Available Lengths (mm)' field.

**4) SpecificPartNumbers** This table contains a record for each part number along with values for each parameter used to describe the part. The parameters are held in the Field 1 to 15 which relates to the Field Index values in the Part Number Fields table.

When adding data to the User Parts Library database it is important to ensure data is entered consistently and accurately. For example, master names must match in the four tables and FieldNames must match in the Part Number Fields and Part Number Field Options table.

Although non-standard parts are normally represented by a balloon shape in the drawing, any shape can be used provided the basic structure matches that of a standard HarnWare balloon shape. In particular the data1 field, custom properties and sub-shape with the data1 field setting for the item number.

Master	PartNumber	Field	Field2	Field3	Field4	Field5	Field6	Field7	Field8	Field9	Field10	Field11	Field12	Field13	Field14	Field15	Description
Bonding Leads 004	CFBA4199-004-N-1.4-100-A	004	N	1.4	100	A											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-B	004	N	1.4	100	B											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-C	004	N	1.4	100	C											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-D	004	N	1.4	100	D											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-E	004	N	1.4	100	E											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-F	004	N	1.4	100	F											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-G	004	N	1.4	100	G											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-H	004	N	1.4	100	H											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-J	004	N	1.4	100	J											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-K	004	N	1.4	100	K											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-L	004	N	1.4	100	L											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-100-M	004	N	1.4	100	M											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-A	004	N	1.4	125	A											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-B	004	N	1.4	125	B											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-C	004	N	1.4	125	C											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-D	004	N	1.4	125	D											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-E	004	N	1.4	125	E											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-F	004	N	1.4	125	F											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-G	004	N	1.4	125	G											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-H	004	N	1.4	125	H											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-J	004	N	1.4	125	J											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-K	004	N	1.4	125	K											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-L	004	N	1.4	125	L											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-125-M	004	N	1.4	125	M											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-A	004	N	1.4	160	A											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-B	004	N	1.4	160	B											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-C	004	N	1.4	160	C											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-D	004	N	1.4	160	D											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-E	004	N	1.4	160	E											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-F	004	N	1.4	160	F											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-G	004	N	1.4	160	G											EN4199-004 Bonding lead, Nickel Plated C
Bonding Leads 004	CFBA4199-004-N-1.4-160-H	004	N	1.4	160	H											EN4199-004 Bonding lead, Nickel Plated C

In this example there are 760 lines to be entered. This table is only used for sequential part numbering and limited coded part numbering schemes. In cases where the SpecificPartNumbers table needs to be loaded with a large amount of data that follows a reasonably well defined logic, a small program will often be the much quicker and less error prone approach. A Visual Basic 6 program can be used to load the Cabletec Bonding Lead part numbers. This simple program will take an hour or so to write and test. A similar program could have been written in Visual Basic for Applications which is included in Microsoft Access and Visio. If you're not proficient in programming it is likely that someone in your company would be able to generate such programs for you or, if you prefer, we'd be happy to offer our help."

Disclaimer

All of the present information, including drawings, illustrations and graphic designs reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the designed application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions.