

TiCon[®]3: Software from MTM for MTM

- ▶ TiCon[®] Base: Analysis and Evaluation based on MTM

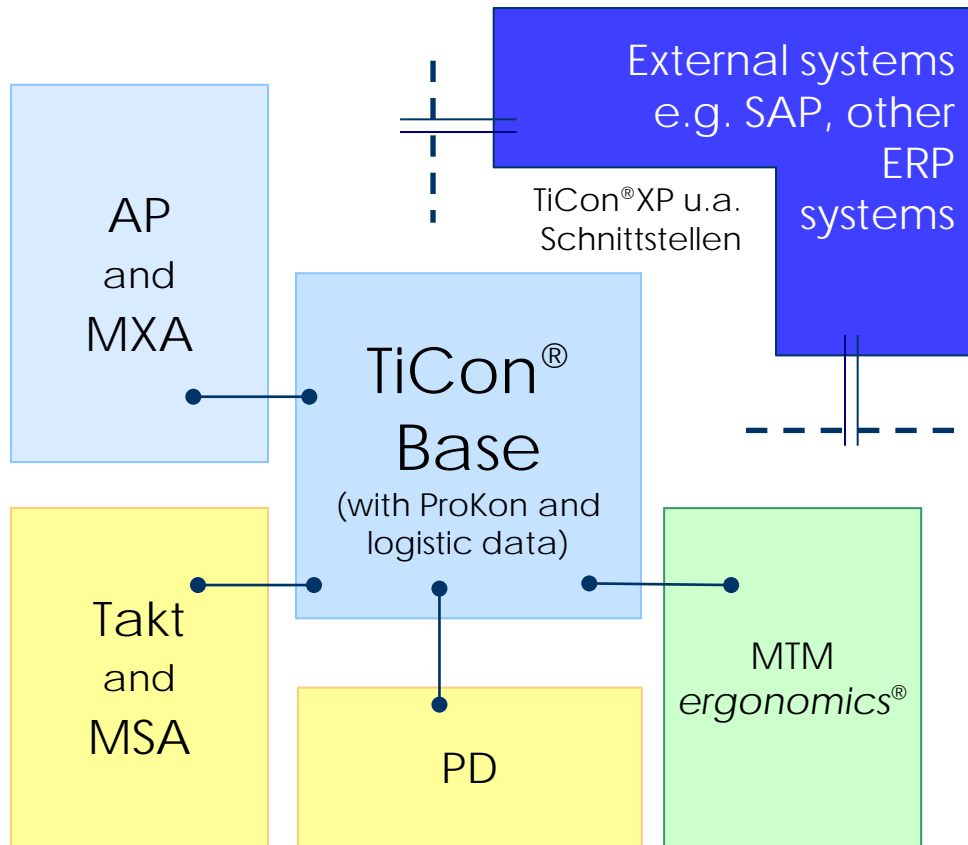
Released: 07/2010



TiCon Product Family



TiCon[®]3 for Windows, Full Version

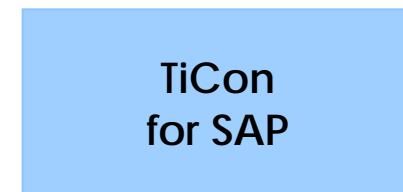


■ Data Acquisition ■ Work Organization ■ Ergonomics

TiCon for Single Users



New in 2010: for SAP Users





TiCon3 support the measurement, analysis and optimization of all operational processes where time is an influencing factor.

Features:

- Tree structured navigation
- Flexible search mechanisms
- Integrated coding and project support
- Easy data exchange between installations and locations
- Multi-language capability within the program interface and user data



The basic software TiCon3 Base supports your work with the following types of process data:

- MTM process element systems (UAS, MEK, SDB, MTM-1 and MTM-2, Visual check, Logistic data)
- Self created analyses based on MTM process elements
- Recording and managing estimated and machine running times
- Formulas and macro formulas (time macros)

Navigation



- Screen controls
 - ▶ Navigation area
 - ▶ Work area
 - ▶ Status bar
- Two modes of use
 - ▶ Display mode
 - ▶ Editing mode
- Split view
- Task switching
- Data cards

TiCon - Client V3.07 (Standard) DB: Standard [MTM] [20] - Hotline: +49 351 26 999 26

Element List Edit View Extras Maintenance Help

Search mode: Simple search - Normal

Data area: User data [20]

Class: Example Letter box [BSP1]

Code: _____ Index: _____ Variant: _____

Description: _____

Result 17/17 Elements found.

Code	Index	Description
DSMV.BKL0...5		Assemble letter bo
DSMV.BKL...5	LU	Assemble letter bo
DSMV.BKL...5	ABS	Assemble letter bo
DSMV.BKL...5	ABS	Assemble letter bo
DSMV.BKL...5		Assemble letter bo
DSMV.BKL...5	ABS	Assemble letter bo
CSZB.BKL4905		Drill 4 holes
CSZB.BKL4705		Drill 4 holes (PT 70)
CSZB.BKL4...5	VARIAE	Drilling on 4 places
CSZB.BKL4...5	FORMEL	Drilling on 4 places
CSRB...4...5		Clean 4 drill holes v
CSRB...3...5		Clean 3 drill holes v
CSPM.BKL...5		Measure and mark
CSMV.BKL4...5	ZU0	Drive in dowel and
CSMV.BKL4...5		Drive in dowel and
CSSL.B...5		Lock up letter box
CSLP.BKL...5		Unpack letter box

Analysis Form B - Example Letter box - DSMV.BKL...5 (LU) - Assemble letter box, small.

Assignment-Evaluation References Documents Pict 1 Text 1 Journal

Header Structure Tree Times TD tree Detail Value added Safety at work Variables Additional objects Additional obj. structure

Code: DSMV.BKL...5 Index: LU Variant: _____

Description: Assemble letter box, small, lightweighted with 4 drill holes

Type: Production [E] Status: Released for tester [3]

Start: _____

Content: Unpack, Hole gauging and marking, Drilling, put in Dowel, screwing on letter box, closing up letter box

End: _____

Restriction: _____

No.	Description	Code	Q x F	tg	tg total	Value add.	trg
1	Unpack letter box (small, lightwighte	CSLP.BKL...5	1 * 1,0	985	985	[N - N]	
2	Measure and mark drill holes	CSPM.BKL...5	1 * 1,0	990	990	[N - N]	
3	Drill 4 holes	CSZB.BKL4905	1 * 1,0	625	625	[VV - VV]	
4	Clean 4 drill holes with besom	CSRB...4...5	1 * 1,0	710	710	[N - N]	
5	Drive in dowel and fix letter box	CSMV.BKL4...5	1 * 1,0	2525	2525	[VV - VV]	
6	Lock up letter box	CSSL.B...5	1 * 1,0	185	185	[N - N]	
				0	0		
					6020		

Database Standard MTM 20 en-US MTM-UAS 0 TMU 0 TMU

Editing Elements



- Auto fill
- Analysis within Structure using
 - ▶ Code Input
 - ▶ Data card
 - ▶ Search list
- Display master copies

Analysis Form B - Example Letter B

Assignment-Evaluation | References | Documents

Header | Structure | Tree | Times | TD tree | Detail

Code: DSMV.BGL... 5

Description: A

Type: Assemble letter box
Assemble part

Start:

Content: Delete list X

End:

Restriction:

Value add.:

TiCon - TiCon 3 / UAS / Basic operation

Get and place		DT	1	2	3	
		Code	TMU			
Easy	aprox.	AA	20	35	50	
	loose	AB	30	45	60	
	tight	AC	40	55	70	
<= 1 daN	aprox.	AD	20	45	60	
	loose	AE	30	55	70	
	tight	AF	40	65	80	
Handful	aprox.	AG	40	65	80	
	aprox.	AH	25	45	55	
	loose	AJ	40	65	75	
> 1 to <= 8 daN	tight	AK	50	75	85	
	aprox.	AL	80	105	115	
	loose	AM	95	120	130	
> 8 to <= 22 daN	tight	AN	120	145	160	
	Place		Code	1	2	3
	approximate	PA	10	20	25	
loose	PB	20	30	35		
tight	PC	30	40	45		

Handle Tool (Get, Place and Aside)		Code	1	2	3
approximate		HA	25	45	65
loose		HB	40	60	75
tight		HC	50	70	85
Operate		Code	1	2	3
one single operation		BA	10	25	40
compound operation		BB	30	45	60
Motion Cycles		Code	1	2	3
one motion		ZA	5	15	20
motion sequence		ZB	10	30	40
shift and 1 motion (with reposition)		ZC	30	45	55
fasten or loosen		ZD	20		
Body Motions		Code			
walk / m		KA	25		
bend, stoop, kneel (incl. arise)		KB	60		
sit and stand		KC	110		
Visual Control		Code			
		VA	15		

Effective Process Navigation using Tree Structure



- Multi-level Display
- Structure Lists
- Elements
- Where Used
- Element Printouts

Tree Structure Navigation

TiCon - Client V3.07 (Standard) DB: Standard [MTM] [20] - Hotline: +49 351 26 999 26

Element List Edit View Extras Maintenance Help

Search mode: Simple search - Normal

Data area: User data [20]

Class: Example Letter box [BSP1]

Code: DS*

Index: Variant:

Description:

Search >>

Result 6/6 Elements found:

List Tree

Code	Ind	Desc
DSMV.BKL0...5		Asse
DSMV.BKL...5	A...	Asse
DSMV.BKL...5	A...	Asse
DSMV.BKL...5	LU	Asse
CSLP.BKL...5		Unpe
SOM-ADC...25		Remi
3000AH3...5		lift p
3000PC1...5		posit
3000Z&2...5		cut f
3000A&2...5		rip o
3000AH2...5		rip o
3000AH3...5		take
3000A&3...5		remc
SOM-BH3...25		Screw
3000AA3...5		Oper
SOM-ACB...25		Unpa
3000VA...5		Com
CSPH.BKL...5		Mea:
SOM-PEC...25		Mea:
SOM-PEB...25		dista
SOM-MG2...25		Mark

Analysis Form B - Example Letter box - DSMV.BKL...5 (LU) - Assemble letter box, small, ...

Assignment-Evaluation References Documents Pict 1 Text 1 Journal

Header Structure Tree Times TD tree Detail Value added Safety at work Variables Additional objects Additional obj. structure

The tree is reconfigured after each save.

Code	Description	Type	Status	Line num	Q x F	Sec. No.	Sec. fact	Ac
CSLP.BKL...5	Unpack letter box (small, lightweighted)	E	3	001	1 * 1,0			
SOM-ADC...25	Remove foil from letter box	E	7	001	2			
SOM-BH3...25	Screw driver additional	E	7	002	1 * 1,0			
3000AA3...5	Open letter box	E	7	003	1 * 1,0			
SOM-ACB...25	Unpack small parts	E	7	004	2 * 1,0			
3000VA...5	Completeness	E	7	005	4 * 1,0			
CSPM.BKL...5	Measure and mark drill holes	E	3	002	1 * 1,0			
SOM-PEC...25	Measure off high (170 cm)	E	7	001	2			
SOM-PEB...25	distance to door (50 cm)	E	7	002	1 * 1,0			
SOM-MG2...25	Mark 4 drill holes	E	7	003	4 * 1,0			
SOM-BH3...25	Take pen and tapeline	E	7	004	2 * 1,0			
3000AJ3...5	Position letter box on the wall	E	7	005	1 * 1,0			
3000KA...5	to table, wall and back	E	7	006	3 * 1,0			
3000AA3...5	Spirit level	E	7	007	1 * 1,0			
3000PC1...5	Align letter box	E	7	008	1 * 1,0			
3000VA...5	Letter box straightly?	E	7	009	1 * 1,0			
3000PA3...5	put away letter box and spirit level	E	7	010	2 * 1,0			
CS2B.BKL4905	Drill 4 holes	E	3	003	1 * 1,0			
CSR8...4...5	Clean 4 drill holes with besom	E	3	004	1 * 1,0			
CSMV.BKL4...5	Drive in dowel and fix letter box	E	3	005	1 * 1,0			
CSLS.B...5	Lock up letter box	E	3	006	1 * 1,0			
				007				

Database Standard MTM 20 en-US - 0 TMU 0 TMU

Expanded Search Options



- Simple Search
- Advanced Search
- Additional Modes in Planning
(e.g. application search, search mode per module)
- Multiple Criteria
(e.g. multiple codes, data areas, users)

The screenshot shows the TiCon Client V3.07 search interface. The search mode is set to "Expanded search - Normal". The search criteria are defined by several checkboxes: Code, Type, Status, Texts, Data area, class, criteria, Journal, Cost center, Validity, Type, and Further. The search results are displayed in a table with columns for Code, Index, Description, Data area, Change date, Modifier, and Validity. The results show 17/17 elements found.

Code	Index	Description	Data area	Change date	Modifier	Validity
CS2B.BKL4...5	FORME1	Drilling on 4 places	20	2007-08-07 10:47:00	MTM	
CSRB...4...5		Clean 4 drill holes with besom	20	2007-08-07 10:46:31	MTM	
CSRB...3...5		Clean 3 drill holes with besom	20	2007-08-07 10:46:08	MTM	
CSPM.BKL...5		Measure and mark drill holes	20	2010-02-26 11:04:27	MTM	
CSHV.BKL4...5		Drive in dowel and fix letter box	20	2007-11-09 17:26:08	MTM	
CSHV.BKL4...5	ZU0	Drive in dowel and fix letter box	20	2009-06-12 10:42:02	MTM	
CSLS.B...5		Lock up letter box	20	2007-08-07 10:47:44	MTM	
CSLP.BKL...5		Unpack letter box (small, lightweighted)	20	2010-02-26 11:04:10	MTM	

Formula Capability



- Automatic transfer of variables from the definition
- Display definition in test calculation

Formula - Standard - AFTGB...X.9 - fork lift transport

Header | Parameter definition | Test calculation | Detail | References | Documents | Pict 1 | Text 1 | Text 2 | Jo

Code: AFTGB...X.9 Index: Variant:

Description: fork lift transport

Type: Production [E] Status: Released for tester [3]

Formula type: Time formula Time distri. Execute T. type: ttb Unit:

Content: sample formula

Definition: $14 * B + 13 * U + 612 + 56 * VB + 30 * VU + 90 * KB + 37 * KU + 420$

Hint: Numerical value

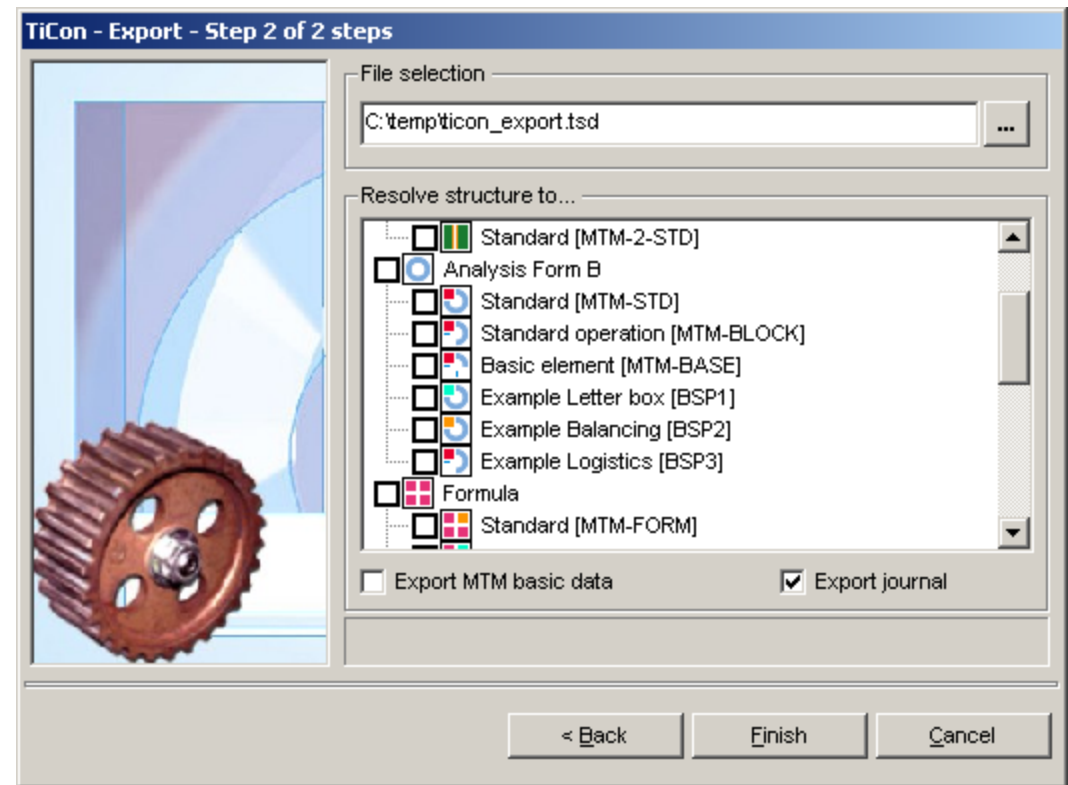
Functions:

Input variable	B	distance, loaded, in m
Input variable	U	distance, unloaded, in m
Input variable	VB	number of start / stop, loaded
Input variable	VU	number of start / stop, unloaded
Input variable	KB	number of curves, loaded
Input variable	KU	number of curves, unloaded

Data Exchange Through Data Carrier



- Enables exchange of TiCon3 data, e.g. between factories, with distributors or from projects
- Function release per user
- Selectable structure depth
- Any transmission media:
 - ▶ Mail attachment
 - ▶ CD
 - ▶ Other storage media



Top-down Structure Support



- Wizard for creating element structures
- Creation of multi-level structures
- Input of estimated times

The screenshot shows a 'New process structure' dialog box. The top section displays a hierarchical tree structure:

- DSMV.BGL...5 - Assemble letter box
 - CSLP.BGL...5 - unpack letter box
 - ASLP.BGL1...5 - remove from box
 - ASLP.BGL2...5 - remove foil
 - CSLP.BGL3...5 - measure and mark drill holes
 - CSLP.BGL4...5 - drill 4 holes

The bottom section contains form fields for defining the element:

- Code: DSMV.BGL...5
- Index: []
- Variant: []
- Description: Assemble letter box
- Start: unpack letter box
- Content: measure and mark holes, drill, fix letter box
- End: after locking
- Restriction: []
- Class: Example Letter box [BSP]
- Est. time: [] TMU
- Factor: 1

Buttons: Continue > and Cancel

Data Coding Support



- Facilitates uniform data storage company-wide
- Mode: optional or mandatory
- Assigned data groups (user classes)
- Display code components with descriptive text
- Can be also used to search for elements

Search mode: Simple search - Normal

Data area: User data [20]

Class: Example Letter box [BSP1]

Code: DS

Index:

Description: **Work area [AB]**
Valid from place 3 to 3 (= 1 place)
possible values:

L	Logistics
M	Assemble
P	Check and measure
R	Cleaning
Z	Machining

Result

List Tree

Code

Analysis Form B - Example Letter box - DSMV.BKLO..5 - Assemble letter box

Assignment-Evaluation | References | Documents | Pict 1 | Text 1 | Journal

Header | Structure | Tree | Times | TD tree | Detail | Value added | Safety at work | Variables | Additional obj

Code: DSMV.BKLO..5

Description: **Work area [AB]**
Valid from place 3 to 3 (= 1 place)
possible values:

L	Logistics
M	Assemble
P	Check and measure
R	Cleaning
Z	Machining

Text cursor is positioned before place 3.

Restriction: only for drilling machines with suction

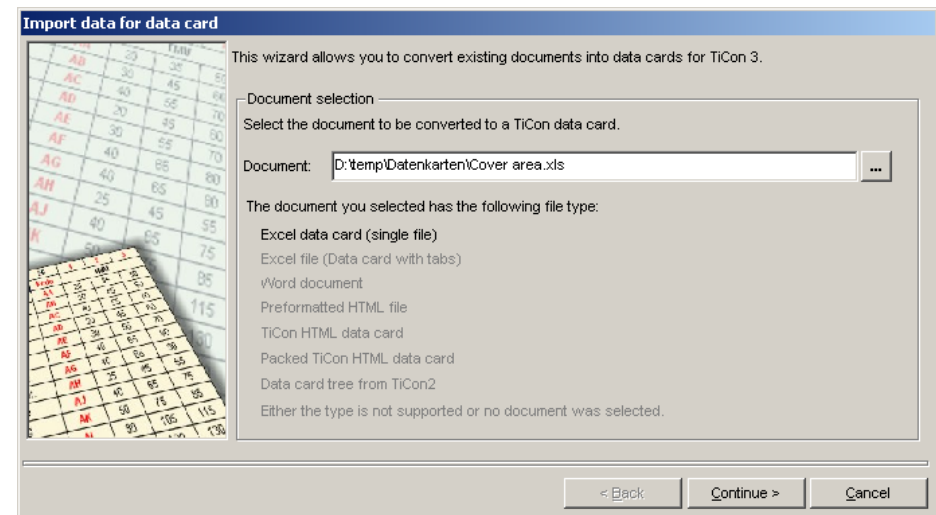
Value add.:

Individual Data Cards



TiCon3 supports the following types of individual designed data cards for self defined standard values:

- MS Excel or MS Word based data cards
- HTML data cards
- TiCon HTML data cards (prepared by MTM e.g. for logistical data)





Individual Excel Data Cards

- Can be created as a simple Excel table
- Analyses behind are assigned in TiCon Administration
- Integrating pictures is possible

Design in Excel

Apply	Code	05	15	30	45	80		
Dispenser	Point	first location	AGGADP..FXX2	114	131	154	176	201
		next location	AGGADP..NXX2	65	70	74	80	85
	Line (10 cm)	first location						
		next location						

Import in TiCon Administration

Apply	Code	05	15	30	45	80		
Dispenser	Point	first location	AGGADP..FXX2	114	131	154	176	201
		next location	AGGADP..NXX2	65	70	74	80	85
Line (10 cm)	first location							
	next location							
	additional location							
Area (10 cm x 10 cm)	first location							
	next location							
	additional location							
Brush								

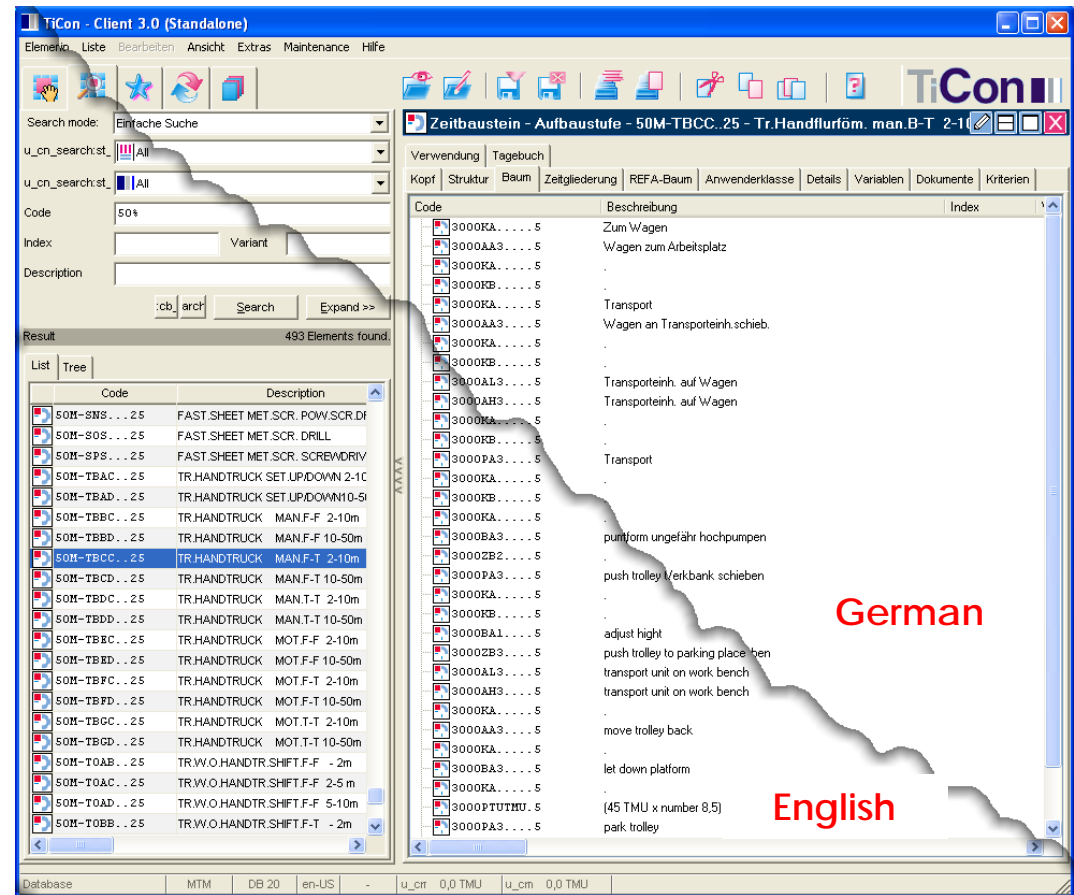
Usage in TiCon

No.	Description	Code	Q x F	tg	tg total	Value add.	trg	trg total
1	Apply with dispenser, point, first loca	AGGADP..F052	1*1,0	114	114		0	

Multi-language Support



- Language is selected during Login
- Includes:
 - Program texts (menus, options, notes)
 - User-defined program elements (e.g. search criteria, allowances)
 - Process data application texts
 - Data cards
 - Print forms





- Clear tree navigation
- Allocation of administration privileges to user groups and users
- Flexible print design
- Release of data cards per user group
- Definition of allowance calculation as formula notation
- Freely definable search criteria
- Configurable HTML page for user information

The screenshot shows the TiCon Administration software interface. The main window is titled "TiCon - Administration V3.07 (Standard) D" and has a menu bar with "Program", "Edit", "Extras", and "Help". Below the menu bar is a toolbar with icons for file operations and navigation. The main area displays a tree view of the "TiCon3 database" structure, including categories like Licenses, Administration, Program, User administration, and Data organization. A dialog box titled "Allowances - Allowances (Example) [ZUK]" is open, showing a form for defining allowances. The dialog has fields for "Code" (ZUK) and "Description" (Allowances (Example)). It also has tabs for "Definition", "Parameters", and "Test calculation". The "Test calculation" tab is active, showing a table with 5 rows of allowance data.

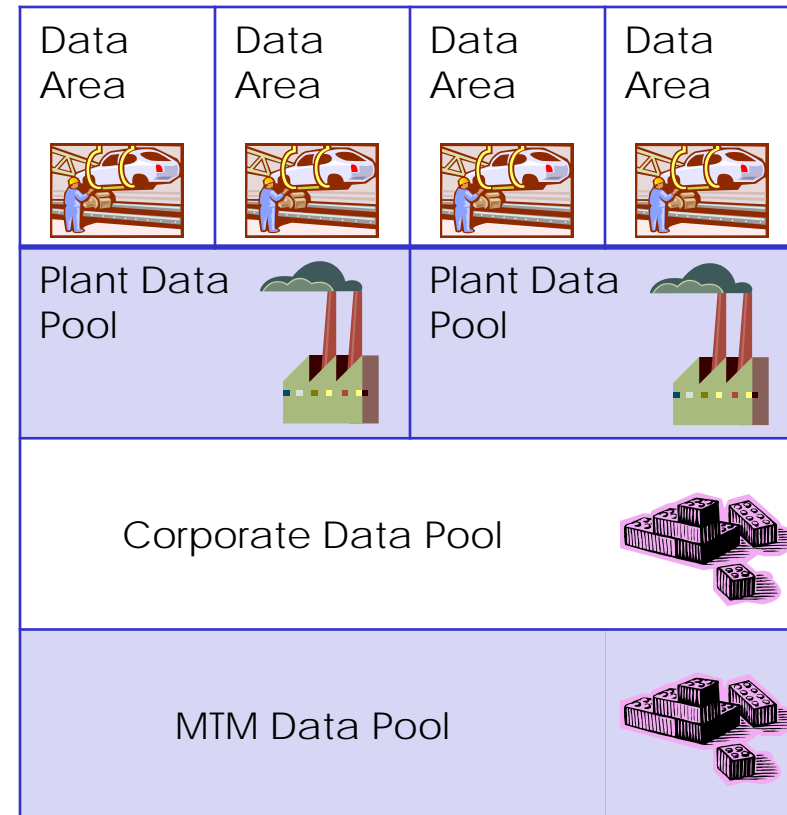
No.	Result time	
1	TV	$(TTB + TTU + TW) * (Z / 100)$
2	TE	$TTB + TTU + TW + TV$
3	TRV	$(TTB + TTU + TW) * (ZR / 100)$
4	TR	$TRTB + TRTU + TRW + TRV$
5		



TiCon3 supports a multi-level SQL data structure

Features:

- Data Base Software
 - ▶ Oracle
 - ▶ MS SQL
 - ▶ ASA Sybase
- User Definable Structure
 - ▶ Levels
 - ▶ Relationships
 - ▶ Global / Separate



TiCon Security



- Administered through TiCon3 Administrative Module
- All user functions are password protected
- Provides full control of user access to all areas of the program (Full, Display Only, or Blocked)
- Data Areas
- Modules/User Classes
- Data Systems
- Reports

Code	Description	F	D	B	Inherited	effective
1	MTM process elements	○	○	○	○	○
10	User process elements	○	○	○	○	○
20	User data	○	○	○	○	○
25	User Data	○	○	○	○	○

Implementation of TiCon 3



if required: data conversion from
other system

Adapt and adjust data and
configure the Administration

Installation and setup of database
and clients

Training and
Implementation

TiCon® - The Team Behind The Software



First Level Support delivered by:

- ▶ MTM Association for Standards and Research
 - ▶ Des Plaines, IL
 - ▶ Sole US Representative
 - ▶ Established in 1951

Second Level Support delivered by:

- ▶ Software House in Dresden / Germany



Training in TiCon and MTM Systems delivered by:

- ▶ MTM Association for Standards and Research

TiCon[®] - The Team Behind The Software



- Extensive Experience:
 - Development of an own MTM Software since the early 80ies
 - Permanent development of software know how in Industrial Engineering
 - Know how transfer within MTM Organization
 - Over 300 installations and over 2.500 users
 - TiCon[®]3 as third software generation since 2005 successfully established as the market standard
- ▶ Development and Support in Dresden, Germany:
 - MTM qualified developers and support staff
 - Competent and personal customer care
 - Yearly customer meetings and regular communication of information



MTM Software House, Dresden, Germany



MTM Association

1111 E Touhy Ave
STE 280
Des Plaines, IL 60126

Phone: 1 847 299-1111

Fax: 1 847 299-3509

info@mtm.org

<http://www.mtm.org>

Thanks for your attention and interest!