

# 13. Industry-Forum 2012

PartDataManager – a strategic modul within the CAD-PDM environment of Liebherr-Werk Biberach GmbH



# Content

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## Report of Liebherr-Werk Biberach GmbH (LBC)

1. Liebherr Plant Biberach
2. Implementation of PartDataManager
3. Functions, Add-On
4. System integration, Processes
5. Highlights, Return of invest, Experience

# 1. Overview Plant Biberach

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## Key data 2010

- ca. 2300 employees
- ca. 480 Mio.€ turn over
  - 50% Cranes
  - 25% Drive and control technics
  - 20% Large bearings
  - Elektronics ...
- Separation in two independent enterprises by the 1/1/2012
  - Cran factory
  - Components factory

# 1. Overview Plant Biberach

## Products



# 1. Overview Plant Biberach

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## IT-Systems

- **CAD: PTC-CoCreate OneSpaceDesigner Modeling/Drafting**
  - >100 seats 2D+3D
  - Add-on modul Klietsch (Steel construction)
- **PDM: PTC-CoCreate OneSpaceDesigner ModelManager/DrawingMgr.**
- **Cadenas PartDataManager**
- **CAM: Missler TopSolidCAM (3D)**
- **ERP: BaaN**
- ...

## 2. Standard part- (searching-) system

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### Motive for implementation (locations Biberach /Pamplona)

Users (TB, BMK, DFZ, AV, NC, Purchase ...) need a tool for

- Searching
- and Creating

of parts - as 3D-CAD-model !

- Great saving of time
- Acceptance = Use
- Reduction of the part variety

## 2. Standard part- (searching-) system

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### Implementation

- |                              |                   |
|------------------------------|-------------------|
| ■ System decision (purchase) | Spring 2005       |
| ■ Go Live V8.1               | Early summer 2006 |
| ■ ...                        |                   |
| ■ Migration to V9.03         | Winter 2011       |

# 3. Portal for Re-use Parts (1)

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## Contents in LBC-PartDataManager

- **Standard parts** DIN, ISO, ANSI (>2000 rows)
- **Catalogs of suppliers** (67 of 1000 available)
- **Custom standard parts** (LN16, LN17, LN70 ...) **LBC**
- **Lists of functional same parts** (e.g. Oil sight glasses) **LBC**
- **ZTS** (Initial load of selected classes)  
(+ all assumed parts in local BaaN) **LBC**

*ZTS = corporate part database*

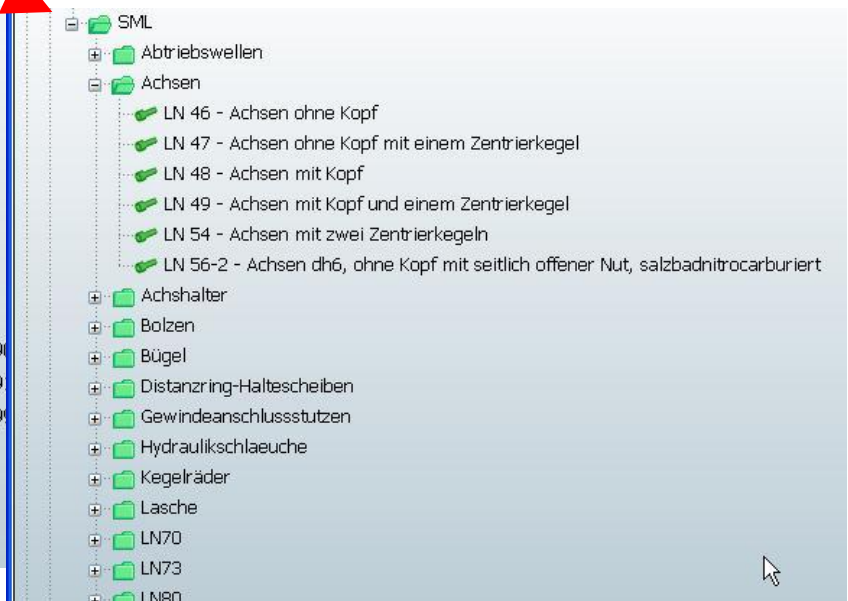
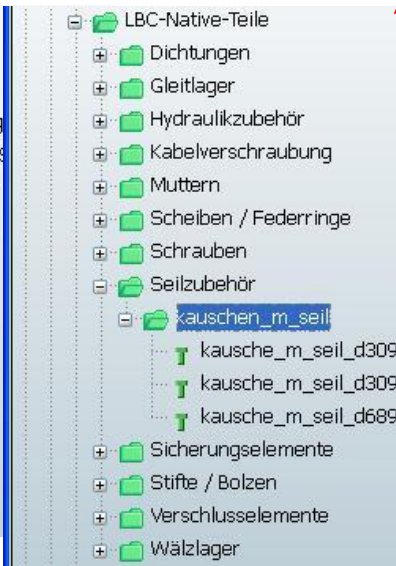
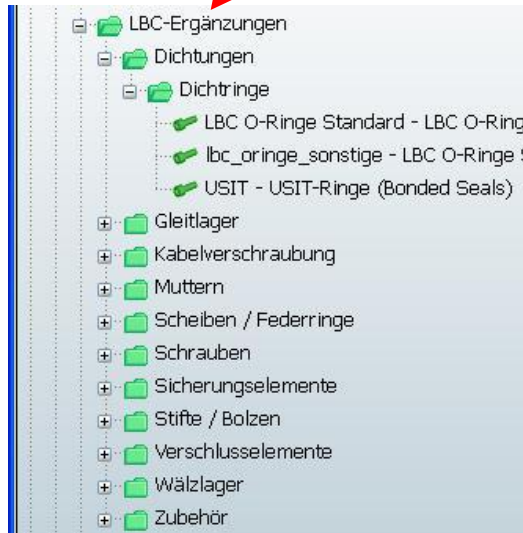
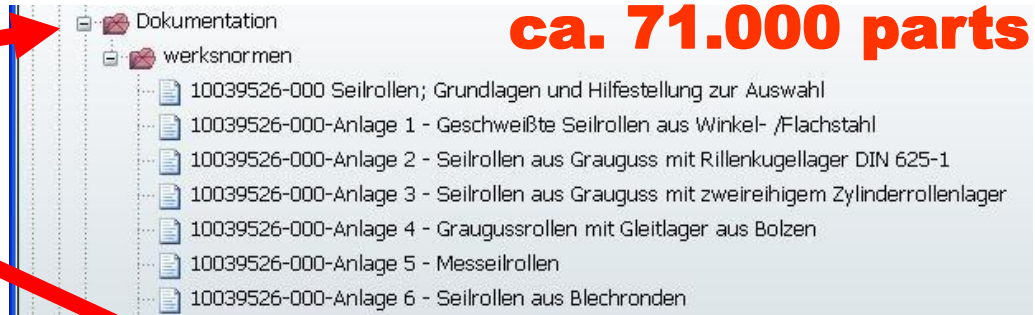


# 3. Portal for Re-use Parts (2)



**„Liebherr-specific add-ons“**

**ca. 71.000 parts**



# 3. Portal for Re-use Parts (3)

## „Liebherr-specific add-ons“ examples

The screenshot displays the PartDataManager interface. On the left, a catalog tree shows the 'LIEBHERR' folder circled in red. Red arrows indicate navigation from this folder to the 'Dokumentation' folder in the main view, and from the 'LBC-Ergänzungen' and 'LBC-Native-Teile' folders to their respective sub-view windows. The 'Dokumentation' window shows a list of documents with a 'LIEBHERR werksnormen' logo. The 'LBC-Ergänzungen' window shows O-rings and seals. The 'LBC-Native-Teile' window shows seals. The 'SML' window shows a grid of shafts labeled LN 46, LN 47, LN 48, LN 49, LN 54, and LN 56-2.

# 3. Searching with LBC-Add-Ons (1)

Sechskantmutter ISO 4035 M24

	LBC_AC	D1	P	* DIN962THREAD	* DIN962OPT2	D2	E	M	S	LBC	COB	LIM	MAT_NAME	OBERFLAECHE	LBC_DE
	Artikelcode	Gewinde...	Gewindek...	Gewindest...	Loch	Durchmes...	Eckemas...	Gesamthö...	Schlüssel...	LBC-Kenn...	COB-Kenn...	LIM-Kenn...	Material	Oberflaeche	LBC_DES
24	M18 411700608	16.000	13.835	2.000	Rechtsgewinde	22.500	26.750	8.000	24.000	101	159	426	4	A2K	
25	M18	18.000	15.294	2.500	Rechtsgewinde	24.900	29.560	9.000	27.000						
26	M20	20.000	17.294	2.500	Rechtsgewinde	27.700	32.950	10.000	30.000						
27	M20 411700808	20.000	17.294	2.500	Rechtsgewinde	27.700	32.950	10.000	30.000		159		8	A3C	
28	M22	22.000	19.294	2.500	Rechtsgewinde	31.400	37.290	11.000	34.000						
29	M24	24.000	20.752	3.000	Rechtsgewinde	33.200	39.550	12.000	36.000						
30	M24 10002633	24.000	20.752	3.000	Rechtsgewinde	33.200	39.550	12.000	36.000	101		426	5	VER2	
31	M27	27.000	23.752	3.000	Rechtsgewinde	38.000	45.200	13.500	41.000						
32	M27	27.000	23.752	3.000	Rechtsgewinde	38.000	45.200	13.500	41.000				6		
33	M30	30.000	26.211	3.500	Rechtsgewinde	42.800	50.850	15.000	46.000						
34	M30 520406901	30.000	26.211	3.500	Rechtsgewinde	42.800	50.850	15.000	46.000	101	159	426	05	A3C	
35	M33	33.000	29.211	3.500	Rechtsgewinde	47.600	57.370	16.500	50.000						
36	M33 10330984	33.000	29.211	3.500	Rechtsgewinde	47.600	57.370	16.500	50.000				ST		
37	M36	36.000	31.670	4.000	Rechtsgewinde	51.100	60.790	18.000	55.000						
38	M36 411701308	36.000	31.670	4.000	Rechtsgewinde	51.100	60.790	18.000	55.000	101		426	05	A3C	
39	M39	39.000	34.670	4.000	Rechtsgewinde	55.900	66.440	19.500	60.000						
40	M42	42.000	37.129	4.500	Rechtsgewinde	60.000	71.300	21.000	65.000						

„Part View“

Verweise

Verzeichnis

- DIN 30386
- DIN 30387
- DIN 30388

Einstellungen

Bemaßungsansichten:

- Vorderansicht
- Seitenansicht

Darstellungsmodi:

- Nenngewinde

Technische Angaben

NB-Sechskantmutter ISO 4035 M24 LOD=HI

# 3. Searching with LBC-Add-Ons (2)

Federstecker LN262 4x78 2 WIND

	LBC_AC	AUSF	W	D3	L1	L2	H	R1	D4	D1	* D2	R2	L4	L5	LBC	
CNS:	Artikelcode	AUSF	Windunge...	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Achsen- ...	[mm]	[mm]	[mm]	LBC-Kenn...	
1	4.5	433100801	MUBEA	1.000	4.000	60.000	30.000	5.000	7.500	20.000	4.500	20	7.000	0.000	0.000	101
2	6	433100101	MUBEA	1.000	5.000	85.000	40.000	7.000	14.000	24.000	6.000	28	9.000	0.000	0.000	101
3	8	433101301	MUBEA	1.000	7.000	105.000	50.000	8.000	18.000	30.000	8.000	45	8.000	0.000	0.000	101
4	7	433100301	Middern...	1.000	6.000	115.000	50.000	10.000	20.000	30.000	7.000	45	8.000	0.000	0.000	101
				1.000	10.000	145.000	77.500	24.000	29.000	50.000	13.500	60	16.000	35.000	10.000	101
				1.000	10.000	170.000	97.500	35.000	43.000	70.000	13.500	90	16.000	40.500	10.000	101
				2.000	2.250	42.000	24.000	2.500	5.600	20.000	2.500	9	4.000	0.000	0.000	101
				2.000	3.000	62.000	32.000	5.500	12.500	16.000	3.500	20	6.000	0.000	0.000	101
				2.000	4.000	78.000	44.000	6.000	12.500	23.000	4.500	24	7.000	0.000	0.000	101
				2.000	5.000	92.000	50.000	6.000	12.500	26.000	5.500	30	9.000	0.000	0.000	101
				2.000	5.600	97.000	45.000	9.000	17.000	25.000	6.300	34	10.000	0.000	0.000	101
													11.500	0.000	0.000	101
													12.500	0.000	0.000	101
													12.500	0.000	0.000	101
													12.500	0.000	0.000	101

**Wert eingeben**

Achsen- Wellendurchmesser [mm]

Bereich: von über 17 bis 24

Wert:

OK Abbrechen

**Input (from - to)**  
**-> Insertion state**

LN70 010 06...

LN70 013/11

# 3. Searching with LBC-Add-Ons (3)

The screenshot shows the PartDataManager software interface. The main window is titled 'Projektauswahl' and has a search bar with 'ganter' entered. Below the search bar, there is a 'Herstellerfilter' field with 'Herstellername' entered. The main area displays a list of parts with columns for 'Vb...', 'Fl...', 'Katalog', 'Name', and 'Beschreibung'. The part 'DIN 468' is highlighted in blue. A pop-up window titled 'Abgelöste(s) Norm/Kaufteil' is open, showing a list of replaced parts. The list has columns for 'Vorschau' and 'Beschreibung'. The first two entries are 'Handkurbeln gekröpft, Form D (DIN 468 D)' and 'Handkurbeln gekröpft, Form F (DIN 468 F)'. The pop-up window also has a 'Bedeutung im Indexbaum:' section with three items: 'Beide Teile sind gültig', 'nur neues Teil ist gültig (aktuelle Auswahl)', and 'ersatzlos gestrichen'. At the bottom of the pop-up window, there are two buttons: 'Abgelöste(s) Norm/Kaufteil laden' and 'Gültige(s) Norm/Kaufteil laden'. Red circles highlight the 'DIN 468' entry in the main list and the 'Gültige(s) Norm/Kaufteil laden' button in the pop-up window.

Vb...	Fl...	Katalog	Name	Beschreibung
		Ganter	DIN 3670	Scheibenhand...
		Ganter	GN 58	Flachtopfmag...
		Ganter	GN 954.6	Klemmplatter...
		Ganter	GN 735	ELESA-Zustel...
		Ganter	GN 598.3	Umleggriffe
		Ganter	GN 718	Pilzgriff
		Ganter	DIN 319	Kugelknöpfe,
		Ganter	DIN 469	Handkurbeln
		Ganter	GN 226	Handräder m...
		Ganter	GN 298.5	Edelstahl-Um...
		Ganter	DIN 468	Handkurbeln
		Ganter	GN 992	
		Ganter	GN 468.1	Sicherheits-Han...

Vorschau	Beschreibung
	Handkurbeln gekröpft, Form D (DIN 468 D)
	Handkurbeln gekröpft, Form F (DIN 468 F)

Bedeutung im Indexbaum:

- Beide Teile sind gültig
- nur neues Teil ist gültig (aktuelle Auswahl)
- ersatzlos gestrichen

Abgelöste(s) Norm/Kaufteil laden    Gültige(s) Norm/Kaufteil laden

# 3. Searching with LBC-Add-Ons (4)

The screenshot shows a CAD software window titled 'Aufbau' with a table of technical data. The table has columns for various dimensions and properties. The 'INFO' column is circled in red, and a red arrow points from it to the Adobe Reader window below.

Stückliste	L02	D03	L06	L10	B01	D04	L15	INFO	LBC	LIM	MAT N
NB	Lochabstand [...]	Kopfdurchme...	Kopfbreite [mm]	Randabstand ...	Bohrungsdur...	Bohrungfase...	Fase [m...	Dokumentatio...	LB Kennung	LIM-Kennung	Werkstoff
BOL LN18 ...	66	20x110	95.0	30.0	6.0	9.0	5.5	LN 18	101		S355J2
BOL-LN18-2...	67	20x120	105.0	30.0	6.0	9.0	5.5	LN 18	101		S355...
								LN 18	101		ST5C
								LN 18	101		S355J2
								LN 18	101		ST5C
								LN 18	101		S355...
								LN 18	101		S355...
								LN 18	101		S355J
								LN 18	101		S355J
								LN 18	101	426	S355...
								LN 18	101		42CRM
								LN 18	101		42CRM
								LN 18	101		S355...
								LN 18	101		E2

The Adobe Reader window displays a PDF document titled '„Data sheet“' for 'LIEBHERR - Norm'. The document is dated 'August 2005' and has the document name '10215025-006'. The title is 'Bolzen mit Kopf Maßnorm'. The content includes:

**1. Anwendungsbereich und Zweck**  
 Diese Norm beschreibt die Eigenschaften von Bolzen mit Kopf. Die Passung des Bolzen-durchmessers (d) entspricht bei  $d < 16 \text{ mm}$  h11 und bei  $d \geq 16 \text{ mm}$  h9 vor Aufbringung eines Oberflächenschutzes. Diese Norm gilt nicht für Bolzen, die in Verbindung mit Wälzlagern verwendet werden.

**2. Mitgeltende Unterlagen**

DIN ISO 2768-1	Allgemeintoleranzen - Toleranzen für Längen- und Winkelmaße ohne einzelne Toleranzeintragung
DIN ISO 2768-2	Allgemeintoleranzen - Toleranzen für Form und Lage ohne einzelne Toleranzeintragung
LN 55	Kennzeichnung: Achsen und Bolzen nach LN 16 bis 54

An image of a bolt is shown in the bottom right corner of the PDF viewer.

# 3. Searching with LBC-Add-Ons (5)

The screenshot shows the PARTdataManager 9.03 interface. The top menu bar includes 'Datei', 'Export', 'ERP', 'Ansicht', 'Tabelle', 'Konfigurator', 'Extras', and 'Fenster'. The toolbar contains various icons, with 'LINFOS LBC' and 'ZTS ZTS' highlighted by red circles. The main window is titled 'Projektauswahl' and features a search bar with the text 'Suchbegriff(e) für Volltextsuche' and a dropdown for 'in allen Katalogen'. Below the search bar, there are buttons for 'Kataloge', '- LIEBHERR -', and 'SML'. A central text box contains the text '„LINFOS and ZTS Research“'. The left sidebar shows a tree view of catalogs, with 'SML' selected. The main area displays a grid of mechanical parts with labels: 'Kataloge', '...', 'Abtriebswellen', 'Achsen', 'Achshalter', 'Gewindeanschlus...', 'Hydraulikschlaeu...', 'Kegelräder', 'Lasche', and 'LN70'.

# 4. System Integration PDM / ERP

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## Processes:

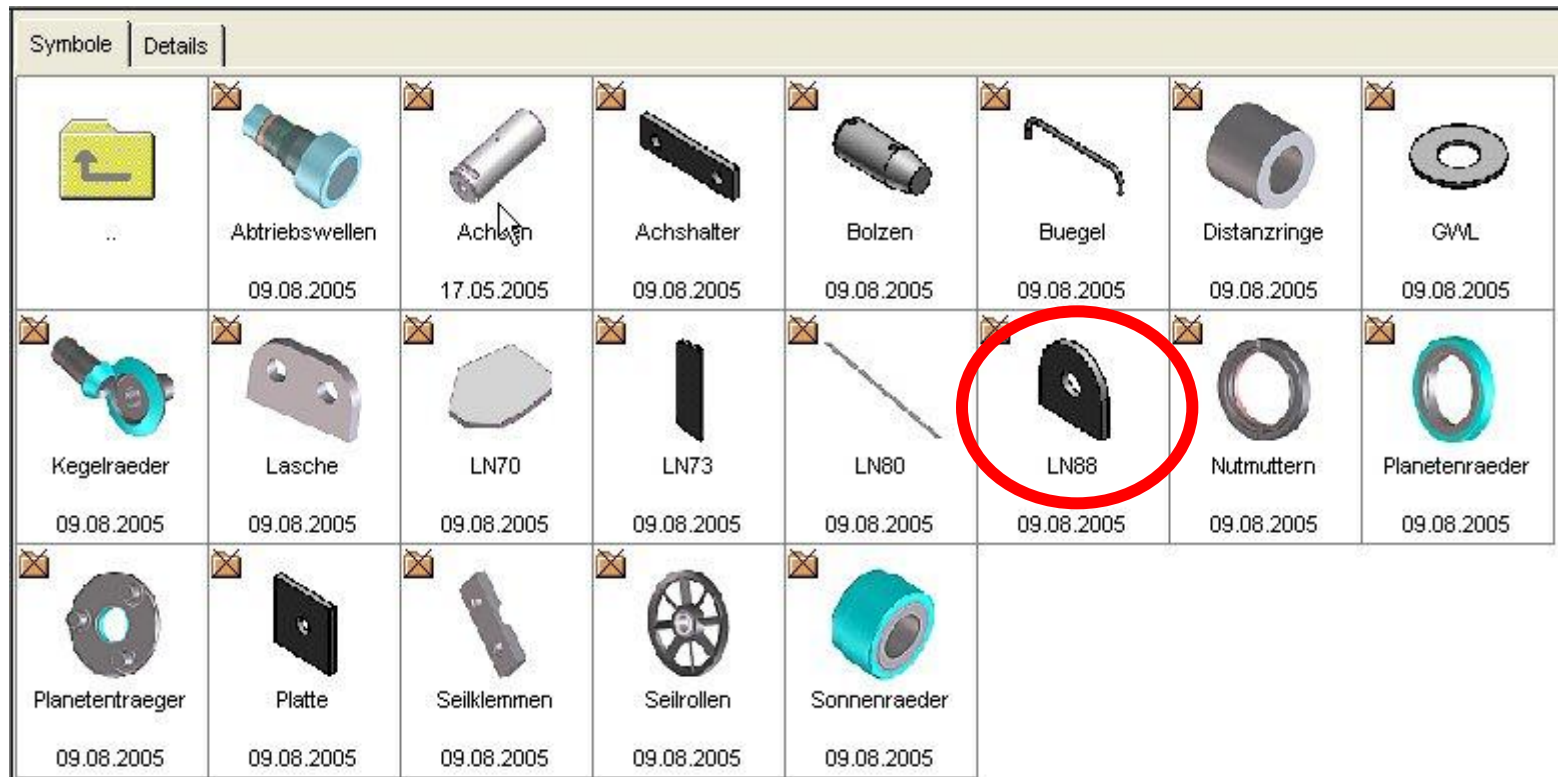
1. **SML-creation with Part Status** (in Arbeit, aktiv/passiv)
2. **Part creation** with attribut transfer
3. **Klietsch-link** (searching parts within a tolerance area)
4. **Flexible shortname (description 2) to CAD**
5. **Unique ID (CAO...) for PDM**
6. **Synchronisation of articlecode between PDM - PartDataManager**
  - a. PartDataMgr -> PDM (if articlecode already exists)
  - b. PDM -> PartDataMgr (while linking part+document)



# 4.1 SML - creating re-use part (1)



„Creating a variant part“



# 4.1 SML - creating re-use part (2)

PARTdataManager 9.03 - PARTsolutions by CADENAS - \\lbcsvcadenas01\cadenas\_data\23d-libs\liebherr\sm\ln88\ln88.prj

Export in Datei

Oese 6.3

Datensatz zur Linken Datenbank hinzufügen (Variante)

	L01	L02	L03	L04	R01	D01	T01	INFO	LBC	COB	LIM	MAT_NAME	OBERFLAECHE	LBC_DESCRIPTION	STATUS	ERP
CNS:	Länge [mm]	Länge [mm]	Länge [mm]	Länge [mm]	Radius [mm]	Durchmes...	Last [t]	Dokument...	LBC-Kenn...	COB-Kenn...	LIM-Kenn...	Material	Oberflaeche	LBC_DESCRIPTION	Status	ERP-Nu
1	15x120x130	120.00	130.00	15.00	70.00	60.00	40.00	5.00	LN 88	101		426	S355J2G3		aktiv	Oese
2	15x140x145	140.00	145.00	15.00	75.00	70.00	43.00	6.30	LN 88	101			S355J2G3		aktiv	Oese
3	18x160x165	160.00	165.00	18.00	85.00	80.00	52.00	10.00	LN 88	101	159	426	S355J2G3		aktiv	Oese
4	20x170x175	170.00	175.00	20.00	90.00	85.00	56.00	12.50	LN 88	101			S355J2G3		aktiv	Oese
5	25x180x185	180.00	185.00	25.00	95.00	90.00	64.00	16.00	LN 88	101			S355J2G3		aktiv	Oese
6	25x220x215	220.00	215.00	25.00	105.00	110.00	72.00	20.00	LN 88	101			S355J2G3		aktiv	Oese

**„LN88“**

Verweise

Verzeichnis

LN 88

Einstellungen

Bemaßungsansichten:

Vorderansicht

Darstellungsmodi:

Technische Angaben

NB=Oese 6.3 LOD=HI\_AUTO

# 4.1 SML - creating re-use part (3)

In following window user must input the geometry values.  
(If no 3D-model appears with this variant, the given values are wrong (plausibility)!)

**Variante anlegen**

Variable	Wert
L01	130.00
L02	130.00
L03	15.00
L04	70.00
R01	60.00
D01	40.00
T01	5.00

**Neue Ident-Nummer**

ERPnr:

Normbezeichnung:

Norm:

Werkstoff:

Status:

Oberflaeche:

Artikelcode:

Ok Abbruch

Then you must input or choice *Artikelcode, Oberfläche and Werkstoff*

# 4.1 SML - creating re-use part (4)

The new variant is in status "in Arbeit (in work)". (As long as it can be also extinguished again!)



	LBC_AC	L01	L02	L03	L04	R01	D01	T01	INFO	LBC	LIM	MAT_NAME	OBERFLAECHE	DESCRIPTION	STATUS
eClass 5.0 (SP1):	Artikelcode	Länge [mm]	Länge [mm]	Länge [mm]	Länge [mm]	Radius [mm]	Durchmesser ...	Last [t]	Dokumentatio...	LBC-Kennung	LIM-Kennung	Werkstoff	Oberflaeche	Beschreibung	Status
1	15x120x130	998070001	120.00	130.00	15.00	70.00	60.00	40.00	5.00	LN 88	101	S355J2G3			aktiv
2	15x130x130	998070101	130.00	130.00	15.00	70.00	60.00	40.00	5.00	LN 88	101	S355J2G3			aktiv
3	15x130x130	998070601	130.00	130.00	15.00	70.00	65.00	40.00	5.00	LN 88		S355J2+N			in Arbeit
4	18x160x165	998070201	160.00	165.00	18.00	85.00	80.00	52.00	10.00	LN 88	101	426	S355J2G3		aktiv
5	20x170x175	998070301	170.00	175.00	20.00	90.00	85.00	56.00	12.50	LN 88	101	S355J2G3			passiv
6	25x180x185	998070401	180.00	185.00	25.00	95.00	90.00	64.00	16.00	LN 88	101	S355J2G3			aktiv
7	25x220x215	998070501	220.00	215.00	25.00	105.00	110.00	72.00	20.00	LN 88	101	S355J2G3			aktiv

The data-release-department (DatenFreigabeZentrale=DFZ) releases the new SML-entries (status **aktiv**).



# 4.2 PartDataManager – Integration (1)

## Artikelanlage in CAD/PDM – ERP – ZTS for Liebherr-SML-catalog

„PartDataMgr“

LBC_AC	FO1	LN	DD1	BS1	INFO	LBC	COB	LN	MAT_NAME	OBERFLAECHE	LBC_DESCRIPTION	STATUS
Artikelcode	Form	Bezeichnung	Bezeichnung	Rating (mm)	Disposition	LBC-Strich	COB-Strich	LN-Strich	Material	Bezeichnung	LBC (30-Charakter)	Part
186 18x38	88679301	80	8.00	300.00		LN 70	101		S395.003			aktiv
187 18x40	88678101	80	8.00	400.00		LN 70	101	199	S235.P02			aktiv
188 18x40	87134020	80	8.00	500.00		LN 70	101		S395.003			aktiv
189 18x40	88653201	80	10.00			LN 70	101		S395.003			aktiv
190 18x45	88655101	80	10.00			LN 70	101		S395.003			aktiv
191 18x50	88443301	80	10.00	50.00		LN 70	101		S395.003			aktiv
192 18x65	88620201	80	10.00	50.00		LN 70	101	199	S235.P02			aktiv
193 18x80	88624301	80	10.00	60.00		LN 70	101		S395.003			aktiv
194 18x85	88626401	80	10.00	85.00		LN 70	101		S395.003			aktiv
195 18x90	88628501	80	10.00	70.00		LN 70	101		S395.003			aktiv
196 18x95	87321801	80	10.00	75.00		LN 70	101		S395.003			aktiv
197 18x80	88601501	80	10.00	80.00		LN 70	101	438	S395.003			aktiv
198 18x80	87305101	80	10.00	90.00		LN 70	101	199	S395.003			aktiv
199 18x80	88637201	80	10.00	100.00		LN 70	101	438	S395.003			aktiv
200 18x85	87348601	80	10.00	105.00		LN 70	101	199	S395.003			aktiv
201 18x110	88901801	80	10.00	110.00		LN 70	101	438	S395.003			aktiv
202 18x120	88650101	80	10.00	120.00		LN 70	101	199	S395.003			aktiv
203 18x125	89025901	80	10.00	125.00		LN 70	101	199	S395.003			aktiv

ZTS-Online - Artikelinformation

Artikelcode: 998509501

**BLECH RD S235JRG2**

Benutzer: LBC

**„ZTS“**

Artikelinformation

Artikelcode	998509501
Ursprungskennzeichen	101 (LBC)
Bezeichnung	BLECH
ZTS ersetzt	
Algemeiner Text	
Liefervorschrift	LN 70-080
Werkstoff-Bez	S235JRG2
Ausprägung	15X90/RD
Norm	
Abnahme	
Oberfläche	
Zeichnungsnummer	
Zeichnungsindex	

KlassID: 140905  
Bezeichnung: BLECH LN70 FORM RUND  
Zuständigkeit: 101 (LBC)

**Merkmale**

Form		
Dicke		mm
Aussendurchmesser		mm
Innendurchmesser		mm

[Doku-Portal Klassen-Dokumente](#)  
[ähnlichen Artikel suchen](#)

CoCreate Model Manager Standalone [Administrator]

0 Objekte gefunden.

Vorschau

attributes

998441301 - ARTIKELANLAGE

Nicht reserviert  
Verkaufstatus: Ein

Struktur Attribute Wo verwendet Notizen Dateien

Allgemein Merkmalsattribute Rohmaterialstückliste Nk

SML-Beschreibung

Form [] 080  
Dicke (mm) 10.00  
Aussendurchmesser (mm) 70.00  
Innendurchmesser (mm)

„PDM“

„LBC-part-creation“

lbcuser.lbc.liebherr.i - PuTTY

Artikelcode: 998441301 BLECH LN 70-080 101 RD NR S235JRG2 Nr: 184154

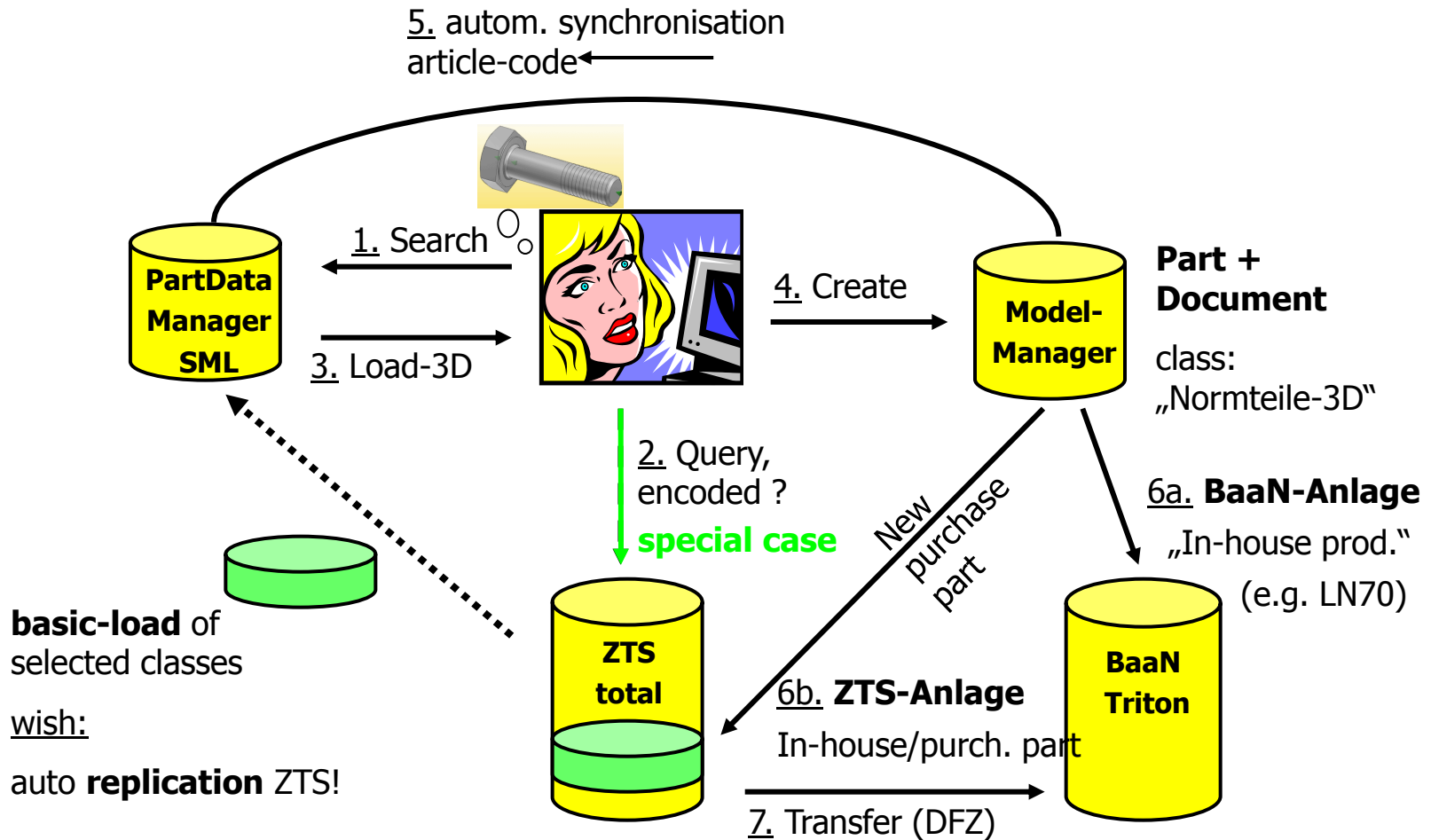
Teileart : 38  
Zusatzbez. :  
ZTS aktiv : Nein intern: Ja

**„Baan“**

Allgemeine Daten	Allgemeine Daten
KT. Artikeltext :	Partner :
Zeichnungsnr./Index :	Artikelart :
Werkstoff : S235JRG2	Artikelgruppe :
Abmessung : 10X70/RD	Produktart :
DIN/ISO/EN :	Selektionscode :
Gewicht : 0,000 sonstig	Signalcode :
LO-Nummer :	Klassifikation : 140905
Liefervorschrift: LN 70-080	Gruppennummer : 10000
Lieferzustand :	Versionsgesteuert: Ja
Suchbegriff I : BLECH	K-Art.-bez. akt. : Mit einbeziehen
WDA/ MRP-Status : I & II 1	Laufende Revision: 1
Teilestatus : aktiv	Spezifikationen Nein
Text allg./EK/VK: Ja /Nein /Nein	Auswahl: .

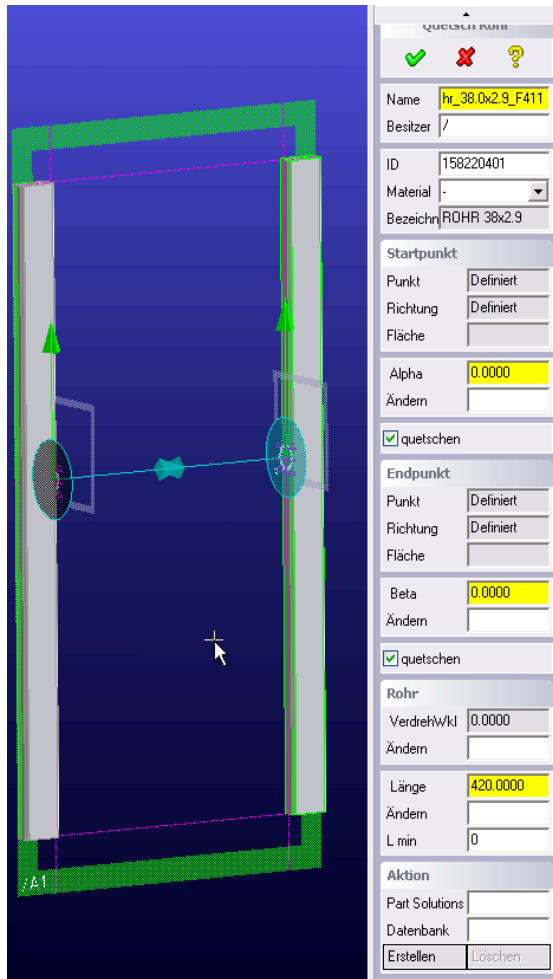
# 4.2 PartDataManager – Integration (2)

## Flow chart „Re-use Part“ in general



# 4.3 Klietsch-Integration (1)

- Normaly user searches in PartDataManager for a Standard Part.
- Within Klietsch-PartDataManager-Integration it is slightly different.

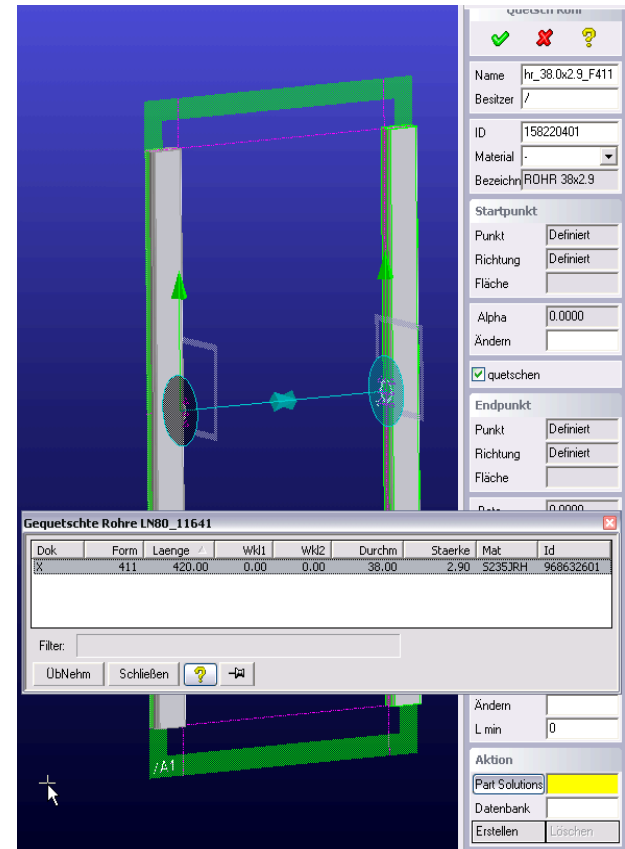
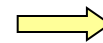


## Squeezed Piepes LN80

**Step 1:**  
**Choice** of profile and definition of location

**Step 2:**  
 Automatic **Query** at **PartDataMgr-DB** with the attributes length, profiletype, and both squeeze angles. If a suitable profile is available, this will be offered to the user.

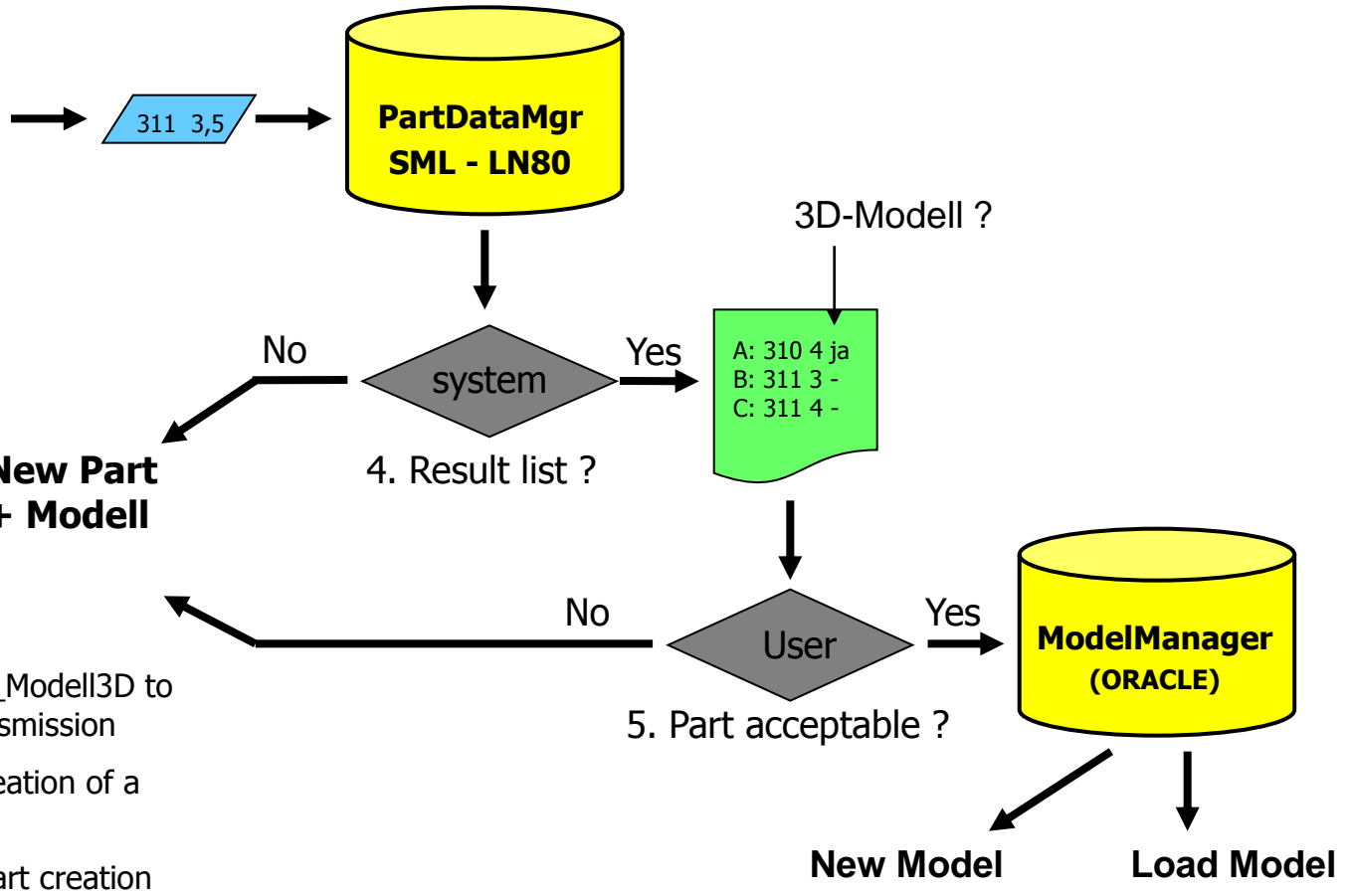
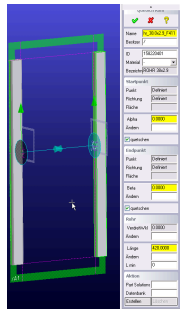
**Result:**  
 X : data set and document  
 - : data set



# 4.3 Klietsch-Integration (2)

## Flow chart LN80 (squeezed pipes)

1. Def. of location    2. Data set    3. Automatic Search



„Construction release“:

- a) In MM from TBKT\_Modell3D to Normteile\_3D transmission
- b) In PartDataMgr creation of a variant
- c) Automatic BaaN part creation



# 4.4 CAD-Integration (1)

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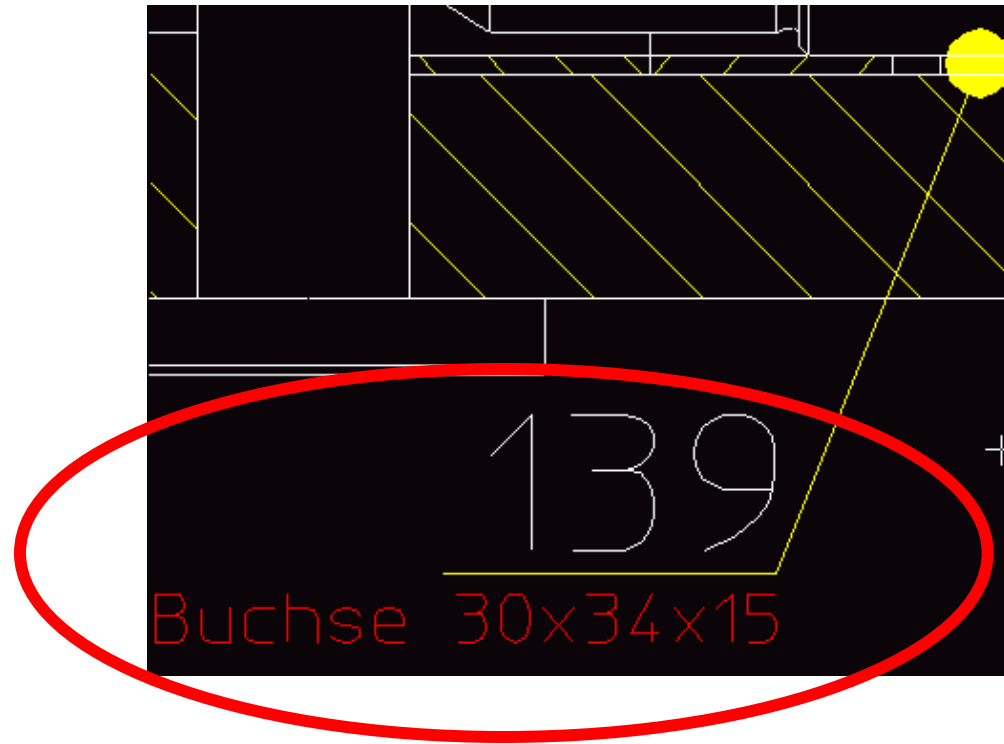
## Program Optimization for CAD

- **Material assignment at part creation**
- **Assignment of correct density with alternative materials**  
(calculating weight within 3D)
- **Correct representation of standard parts in drawings automatically**  
(cut or not)
- **Correct insertion state**  
(sealing ring squeezed, spring clip clamped, ..)
- **Flexible shortname in drawing**  
(according to user group)

## 4.4 CAD-Integration (2)

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**Flexible Shortname ->CAD** (Cutting of an overview drawing)



[liebherr/lbc-ergaenzungen/gleitlager/buchsen\_lbc/lbc\_buchse.prj]  
DESCRIPTION2=Buchse \$D1.x\$D2.x\$L1.

# 5. Highlights (1)

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## Advantages for the user:

- One Portal for searching standard / re-use parts
- Geometry (3D-model) at the push of a button
- Preview in 2D/3D (measuring possible!)
- Hint to outdated/removed norms
- Hint to preferred parts
- Further documents (technical data sheet) ...

## 5. Highlights (2)

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### Advantages general:

- CAD independent
- Many CAx-Interfaces available  
ProE, Catia, OSD, E3, UGS, SolidWorks, TopSolidCAM, ME10 ...
- Possible to administer assemblies (other systems not e.g. SolidLib)
- Central maintenance of data
- Multi-Lingual User-Interface  
group: german, englisch, french, spanish, bulgarian ...

# 5. Hands-on experience

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## Implementation and operation

Go-Live 2006      => 5 years operation / experience

- From beginning high acceptance by users
  - Few problems in everyday business = very stable system
  - Competent support on the part of Cadenas company
  - System is well administerable and adaptable
  - Catalog-Update with low effort
  - Temporarily problems when updating CAD/PDM  
(low spreading of PTC-CoCreate OneSpaceDesigner)
- 5 year successful usage (productivity)

# 5. Cost aspect

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## Return of Invest (ROI)

### Current costs / year

SW-Maintenance 12.000.- €

**reached:**

### Economy of costs needed

a.) 80 User : 150.- € / user and year

cost of labour 75.- €/hour -> **2 hours / year**

45 working weeks ~ **2,5 min. / week**



( Or ) **and**

b.) Parts Re-use (less new parts)

New part 1500.- € administration / year

-> **8 (new) parts less / year**



**Thank you for your  
attention**