

BDE expert



Optimal recording and evaluation of
Staff-Production- and Machine data

Product information

RGU Expert GmbH

Schweinfurter Str. 28

97076 Würzburg

Tel.: +49 (0) 931 30980-0

Fax.: +49 (0) 931 30980-22

www.rguexpert.de

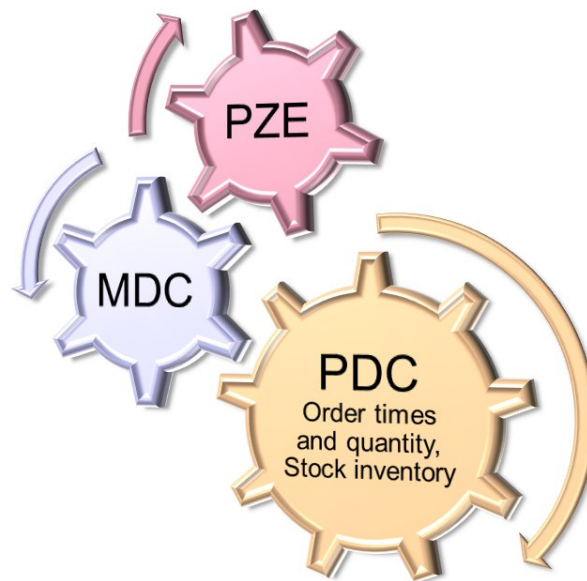
Table of content

Down to business	3
An overview of <i>BDE expert</i>	4
Program areas in BDE expert	5
PZE - Time management	6
Example dialogues - Time Management	7
Example dialogues - Time Management	8
Features of the Personnel resource planning	9
Example dialogues - Personnel resource planning	10
Example dialogues - Access control	11
BDE – Auftragszeiten und –mengen / Gemeinkostenzeiten / Materialverwaltung	12
Overview – BDE- production data capturing - focus on order times and quantities	13
Production data capturing master data management with BDE expert	14
BDE-examples – Feedback using touch PC	21
Menue on a Touch-PC	21
Work task list	22
Production feedback	23
Downtime feedback	25
Document management on the Touch-PC	25
BDE – mobile data capturing	26
Application examples - mobile data capture	27
Article identification via RFID and mobile reading devices	29
MDE – Maschinendatenerfassung	30
Application examples of machine data capturing MDE	31
Application example of MDE connection using IO box	31
Evaluation expample with graphical display	32
Example 1 – Machine uptime monitoring (ONLINE display)	32
Example 2 – Report Cube evaluation– Production and downtime comparison	32
Example 3 - Dashboard (OEE – key figures)	33
Example 4 – Display of various machine data using the Dashboard	34
Example 5 – Production visualisation (Hall monitor)	35
Hardware configuration example	36

Down to business

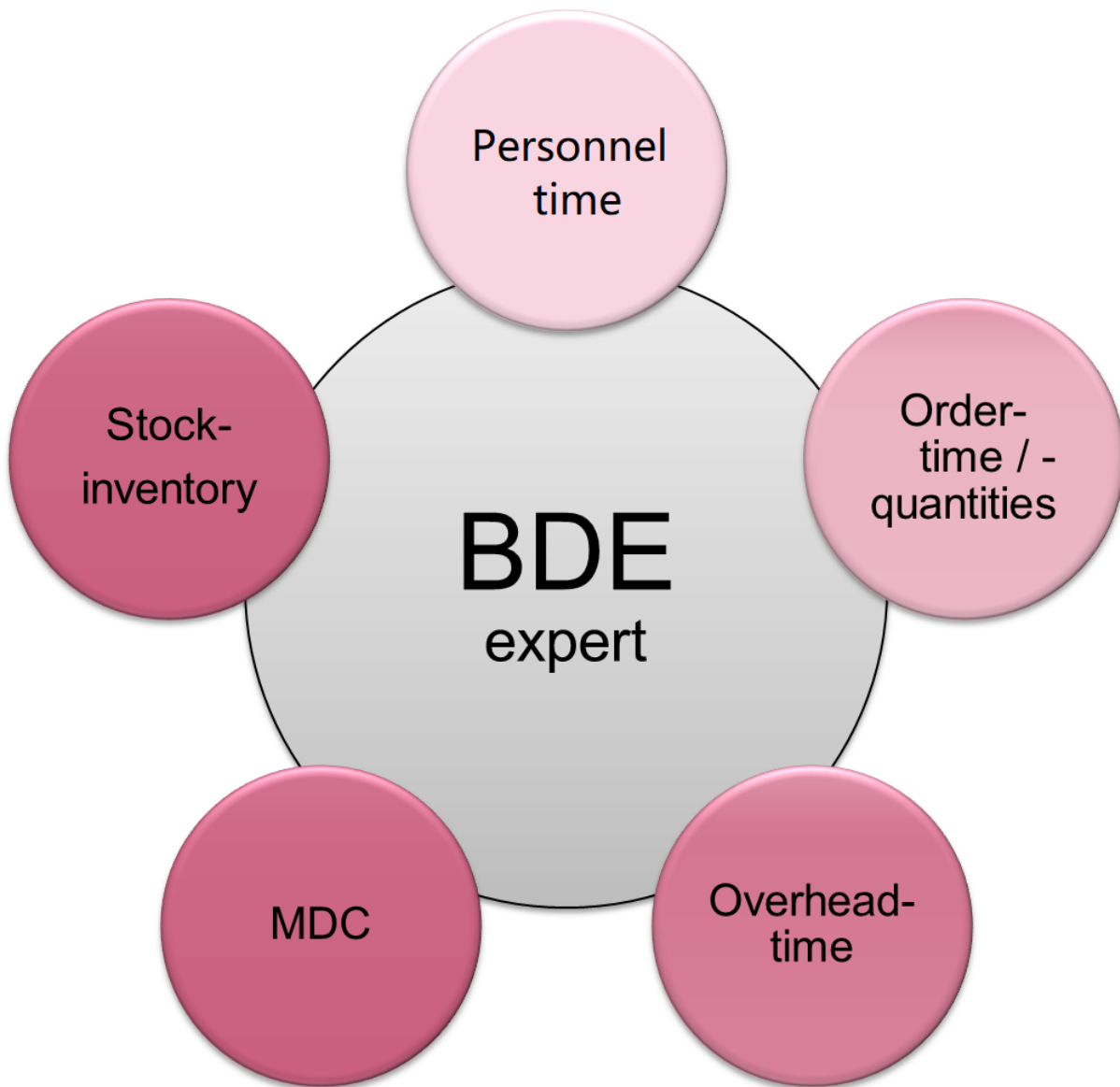
Any company's success now depends largely on the ideal design of business processes. The secure recording and evaluation of production and machine data is an essential component of this success

BDE expert provides the perfect network solution. The module PZE - Time Management manages the working hours of your employees.

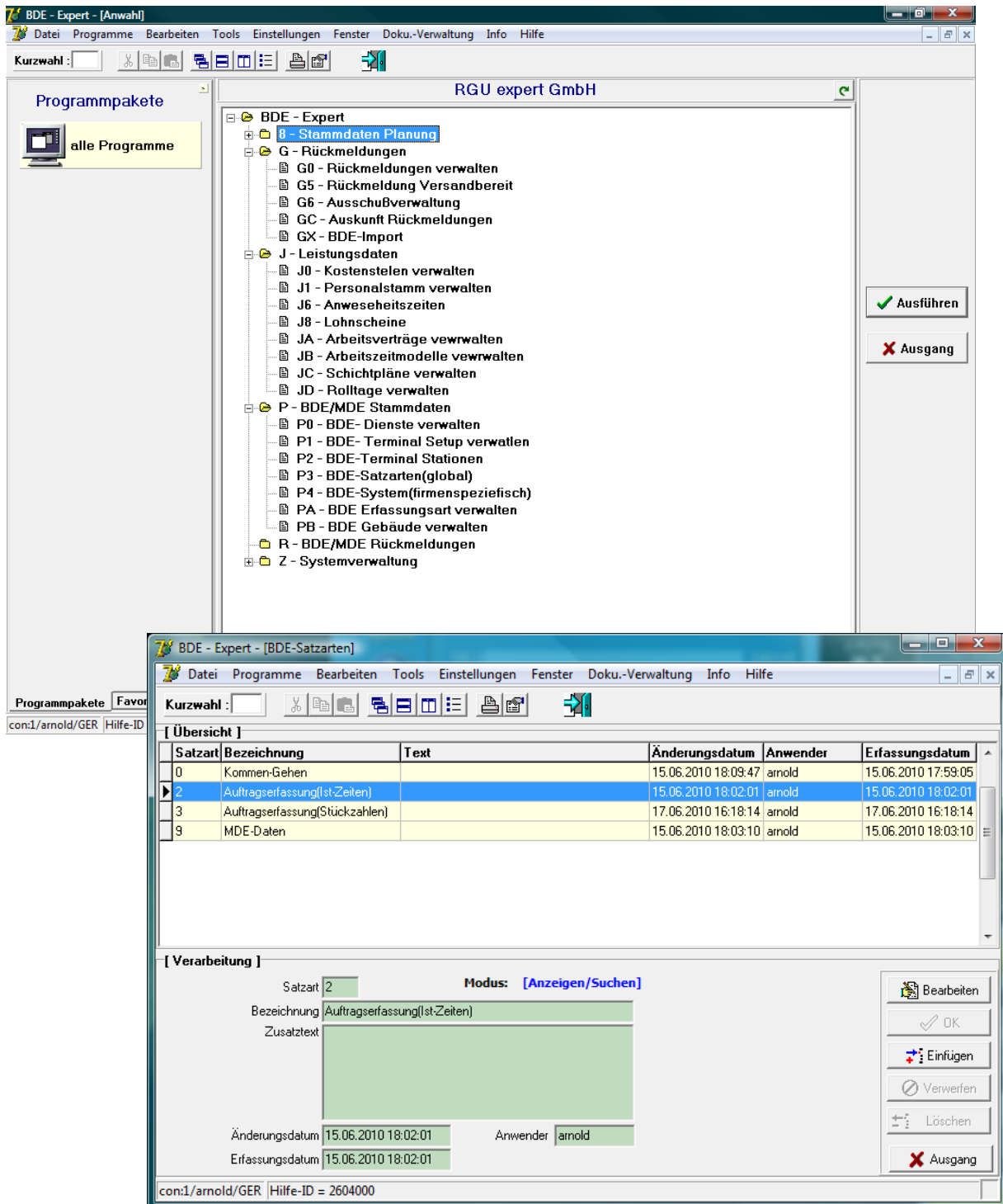


BDE integrates apart from the order times and quantities also stock inventory and the overhead costs time administration. The machine data logging keeps you informed about the machine condition and possible malfunction or non-operation periods up to date. BDE expert creates transparency in the company and increases the productivity.

BDE expert is fully integrated into the PPS modules of structura. The system offers interfaces to external ERP solutions. The data are available in a modern relational database. Own evaluations are to be provided with the integrated report generator and designer in a simple manner.

An overview of *BDE expert*

Program areas in BDE expert



PZE - Time management

The working time of your employees becomes ever more valuable, therefore this resources must be planned, seized and evaluated optimally.



In practice the outcome of this is, dependent on industry and organization, the most diverse requirements:

- Working times are today very variable and are often subjected to complex time models. PZE expert manages this tasks and ensures better planning.
- Time absent (vacation, business trip, illness etc.) and individual account standards are to be considered automatically.
- General activities (overhead costs activities) must be booked on cost centres and projects or distributed afterwards on these.
- The presence of the employee must be to production planning and control (PPC) at the disposal, so that the capacity or rather detailed planning can count on reliable personnel data.
- Guiding and evaluating any time accounts.
- interfaces to payroll accounting / cost calculation
- Personnel resource planning ensures greater transparency in the planning of personnel resources.
- Access control system controls the access to companies, or to individual buildings.

Personnel master data

Working time models

Shift model

Building, area and terminal management

Time logging / Billing / correction

Change of cost center

Time accounts

Interfaces

Extensive evaluation options

Access control system

Example dialogues - Time Management

11 - Personenstamm **Übersicht** **Bearbeiten**

Personen-Nr. **00016** Lautenschläger Karl Modus: [Ändern]

persönliche Daten Zuordnungen Tagesdaten Monatsdaten Sonstiges

[Adressdaten]

Anrede: **Herr**

Name: **Lautenschläger** Anwender: **sebastian**

Vorname: **Karl** l. Änderungsdatum: **18.03.2011 17:28:57**

Zusatzname: **Manfred** Erfassungsdatum: **25.01.2010 13:28:32**

Strasse: **Schweinfurter Str. 26** Status: **D aktiver Mitarbeiter**

Postfach: Temporal Angelegt: **1 Ja**

PLZ / Ort: **97074 Würzburg**

Landeskennung: **D Deutschland**

Land: **Deutschland**

Sprache: **Deutsch**

Unser Zeichen: **sg**

[Bankverbindung]

Telefon: **01023 45 678 90** Name der Bank: **Deutsche Bank**

Telefonkürzelwahl: Kontonummer: **11 - Personenstamm**

Funktion: BIC: **Übersicht** **Bearbeiten**

privates Telefon: Internal Bankleitzahl (IBAN):

Fax: **Personen-Nr. 00016** Lautenschläger Karl Modus: **Übersicht**

Faxkurzwahl: persönliche Daten Zuordnungen Tagesdaten Monatsdaten Sonstiges

E-Mail-Adresse: **sg@guexpert.de**

[Lohnsteuer - Daten]

Geburtsdatum: **15.01.1960** Konfession: **Zeitmodelle**

Einstellungsdatum: **20.01.2010** Familienstand: Basis Arbeitszeit-Modell **AZM-00040** **Frühschicht**

Ausscheidungsdatum: **21.01.2048** Krankenkasse: [alternative Arbeitszeitmodelle]

Bürger des Staates: **D Deutschland** Rentenversicherungs-Nr: Arbz.-Modell Bezeichnung gültig ab gültig bis Änderungsdatum Erstellungsdatum

Steuerklasse: **4 Lohnsteuerklasse 4** Krankenversicherungs-Nr: ▶ AZM-00037 Spatschicht 18.03.2011 18.03.2011 18.03.2011 18:37:18 18.03.2011 18:37:18

Anzahl Kinder: ▶ AZM-00038 Nachtschicht 18.03.2011 18.03.2011 18.03.2011 18:37:38 18.03.2011 18:37:38

Image – Extract from personnel time management dialogues









[Zutrittskontrolle]

Türöffner-Minuten vor Arbeitsbeginn: Türöffner-Minuten nach Arbeitsende: **Hinzufügen** **Entfernen**

Image – Extract from personnel time management dialogues

BDE - Export - [J1 - Personenstamm]

☒ Datei
 ☒ Programme
 ☒ Bearbeiten
 ☒ Tools
 ☒ Einstellungen
 ☒ Erster
 ☒ Doku-Verwaltung
 ☒ Info
 ☒ Hilfe

Kurzwahl:        

Übersicht ☒ Bearbeiten

Personen Nr.: Mustermann Max Modus: [Anzeigen/Suchen]

persönliche Daten Zuordnungen Tagesdaten Urlaub Sonstiges

[Jahresurlaubfreigabe] [Urlaubsanspruch (Vertragsart)]

automatisch am 03.01 neu vergeben 1 Ja jetzt neu berechnen
 Urlaubsanspruch 32 Tage

[Urlaubskonto]

Jahr	Anzahl Urlaubstage	Resturlaub Vorjahr	Korrektur	Urlaubstage im aktuellen Jahr	Rest	Plan	Bemerkung
2015	32,00	0,00	0,00	7,00	25,00	0,00	
2014	32,00	-3,00	0,00	29,00	0,00	0,00	
2013	32,00	2,00	-22,00	15,00	-3,00	0,00	

[Jahresverlauf]

W/Tag	Datum	Wert
Fr	10.04.2015	1,00
Do	09.04.2015	1,00
Mi	08.04.2015	1,00
Di	07.04.2015	1,00
Mo	16.02.2015	1,00
Mo	05.01.2015	1,00
Fr	02.01.2015	1,00

☒ Bearbeiten
☒ OK
☒ Verwerfen
☒ Einfügen
☒ Löschen

Image – Vacation time management

Example dialogues - Time Management

EDE Expert - [A...DZE Auswertung und Abschluss]

Daten Programme Einheiten Jobs Anstellungen Entlohnungen Ersterer Doku-Verrichtung Info Hilfe

Kurzwahl:

Übersicht Bearbeiten

Pers.-Nr.	Mustername, Max	Mensual	Akt	Jahr	2015	Aktivieren	Modus	[Anzeigen/Schließen]			
Tagesjournal											
Dat	Vorg ID	Kommt	Gleich	Istzeit	Sollzeit	Pause	+/-	Arbeitszeitsmodell	Status	Berechnung	Fk
Mi 1	06:00:00	15:29:51	8:48	7:75	1	0,73	GLZ 37 Std	übergeben	01		
Do 2	06:00:00	13:14:00	6:98	7:75	0,25	-0,77	GLZ 37 Std	übergeben	01		
Fr 3	FT				6:00			GLZ 37 Std	übergeben	01	
Sa 4	4								01		
So 5	FT								01		
Mo 6	FT				7:75			GLZ 37 Std	übergeben	01	
Di 7	USI	06:00:00	15:57:36	8:95	7:75	1	1,20	GLZ 37 Std	übergeben	01	
We 8					7:75			GLZ 37 Std	übergeben	01	
Do 9	06:00:00	16:57:00	9:95	7:75	1		GLZ 37 Std	übergeben	01		
Fr 10	04:15:00	18:45:00	14:00	6:00	0,5	8,00	GLZ 37 Std	übergeben	01		
Sa 11									01		
So 12									01		
Mo 13	06:00:00	15:01:17	8:02	7:75	1	0,27	GLZ 37 Std	übergeben	01		
Di 14	06:00:00	14:59:58	7:98	7:75	1	0,23	GLZ 37 Std	übergeben	01		
Mi 15	LZF				7:75			GLZ 37 Std	übergeben	01	
Do 16	06:00:00	14:40:35	7:80	7:75	1	0,05	GLZ 37 Std	übergeben	01		
Fr 17	06:00:00	12:27:34	6:20	6:00	0,25	0,20	GLZ 37 Std	übergeben	01		
Sa 18									01		
So 19									01		
Mo 20	06:00:00	15:12:56	8:20	7:75	1	0,45	GLZ 37 Std	übergeben	01		

gültig ab	07.04.2014
Berechnung	GLZ 37 Std
Sollzeit	7:75 = 465
Kommt	08.04.2015 06:00:00
Istzeit	08.04.2015 07:59:00
+/-	9:72 = 583
	= 1:57 = 118

an Sondereinstellung 018 UST

2 Tageshilfe

Feiertag

--	--

Verarbeiten Informationen

Vergüt.-Nr.	Berechnung	Vergütungssatz	Wert von bis Istzeit Steuer frei Verbuchung auf Statistik
001	Anw.Std.	Zeit in % Min	100 06:00:00 07:59:00 1:37 Nein Lohnabrechnung keine Statist.
017	Anw.Tag	Zehntel fest	100 06:00:00 07:59:00 1:00 Nein Lohnabrechnung keine Statist.
009	GLZ-Zustufe	Zeit in % Min	100 06:00:00 07:59:00 1:37 Nein Glanzskizzen keine Statist.
107	Unlufz.stde	Zehntel fest	100 06:00:00 07:59:00 1:00 Nein Lohnabrechnung keine Statist.
108	Unlwfz.stde	Zehntel fest	100 06:00:00 07:59:00 1:00 Nein Lohnabrechnung keine Statist.

[Vergleichen bearbeiten]

Artw.Std.	100
Weg Zeit (%)	1:37

Hauptkonto	Vergüt.-wert	Statistik (Std.)
GLZ	100	-43,25
ADR	100	-19,00

Tag		Stempelzeit	Bestellzeit	Pausen / Unterbrechungen		Soll	Ist o. Pause	+/-	Kumm.	Korr.
01 So										
Wochen summe:						0,00	0,00	0,00	0,00	0,00
02 Mo	05:56 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
03 Di	05:56 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
04 Mi	05:55 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
05 Do	05:55 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
06 Fr	05:57 - 13:30	06:00 - 13:30	09:00 - 09:30	0,50		7,00	7,00		0,00	
07 Sa										
08 So										
Wochen summe:						0,00	0,00	37,00	37,00	0,00
09 Mo	05:59 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
10 Di	05:55 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
11 Mi	05:56 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
12 Do	05:57 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		0,00	
13 Fr	05:55 - 13:30	06:00 - 13:30	09:00 - 09:30	0,50		7,00	7,00		0,00	
14 Sa										
15 So										
Wochen summe:						0,00	0,00	37,00	37,00	0,00
16 Mo U						7,50	7,50		0,00	admin
17 Di	05:54 - 13:00	06:00 - 13:00	09:00 - 09:30	0,50		7,50	8,50	-1,00	-1,00	
18 Mi	05:54 - 14:00	06:00 - 14:00	09:00 - 09:30	0,50		7,50	7,50		-1,00	
19 Do	KR 05:53 - 07:47	06:00 - 07:45				7,50	7,50		-1,00	
20 Fr	KR					7,00	7,00		-1,00	admin
21 Sa										
22 So										
Wochen summe:						0,00	0,00	37,00	36,00	-1,00
23 Mo	KR					7,50	7,50		-1,00	admin
24 Di	KR					7,50	7,50		-1,00	admin
25 Mi	KR					7,50	7,50		-1,00	admin
26 Do	KR					7,50	7,50		-1,00	admin
27 Fr	KR					7,00	7,00		-1,00	admin
28 Sa										
Wochen summe:						0,00	0,00	37,00	37,00	0,00
Monatssumme:						0,00	0,00	148,00	147,00	-1,00
Sondertage		Std./Tage		Stunden	Feriertage	0 Tage				
U Urlaub		1 Tage		7,50 h						
KR Krank		7 Tage		51,50 h						
Jahresurlaub:				32,00 Tage	Urlaub genommen:				3,00 Tage	
Resturlaub Vgljahr:				0,00 Tage	Urlaub geplant:				4,00 Tage	
					Urlaub Rest:				25,00 Tage	

Image –Staff time logging report

Features of the Personnel resource planning

Personnel resource planning is an important add-on of the module PZE. Considering the working time models, holiday wishes or other miscarriages / overtime the personnel resources allows ideal and simple planning.

Important features of the Personnel resource planning:

- Free selectable planning horizons (shift, day, week, month)
- Selectable group functions (eg department, cost, work group / team)
- Simple schedule of master / change cast,
- Considering the working time models,
- Scheduling of specific times (eg holidays, overtime, sickness, etc.) per grouping concept,
- graphical display of the planned personnel resources with modification possibilities,
- Approval of of staff deployment plans (by status) for further use,
- Accumulation of the planned personnel resources per grouping concept and planning horizon,
- Illustration of deviations of planed / actual allocation by the cost center changes from the PDC system in structura.
- Supply of plan values for capacity planning in structura. Planned personnel resources are automatically considered in capacity planning.
- Illustration of understaffing and miscast staffing of individual departments and planning periods.
-

Free planning horizons

Free selection and group function

Scheduling of specific times

Graphical display and Editing the staff deployment plan

Illustration of deviations plan / actual

Consideration of the staff deployment plan in the capacity calculation

Illustration of lower and miscast

Example dialogues - Personnel resource planning

Visual illustration of staff scheduling grouped by department with modification possibility via drag and drop.

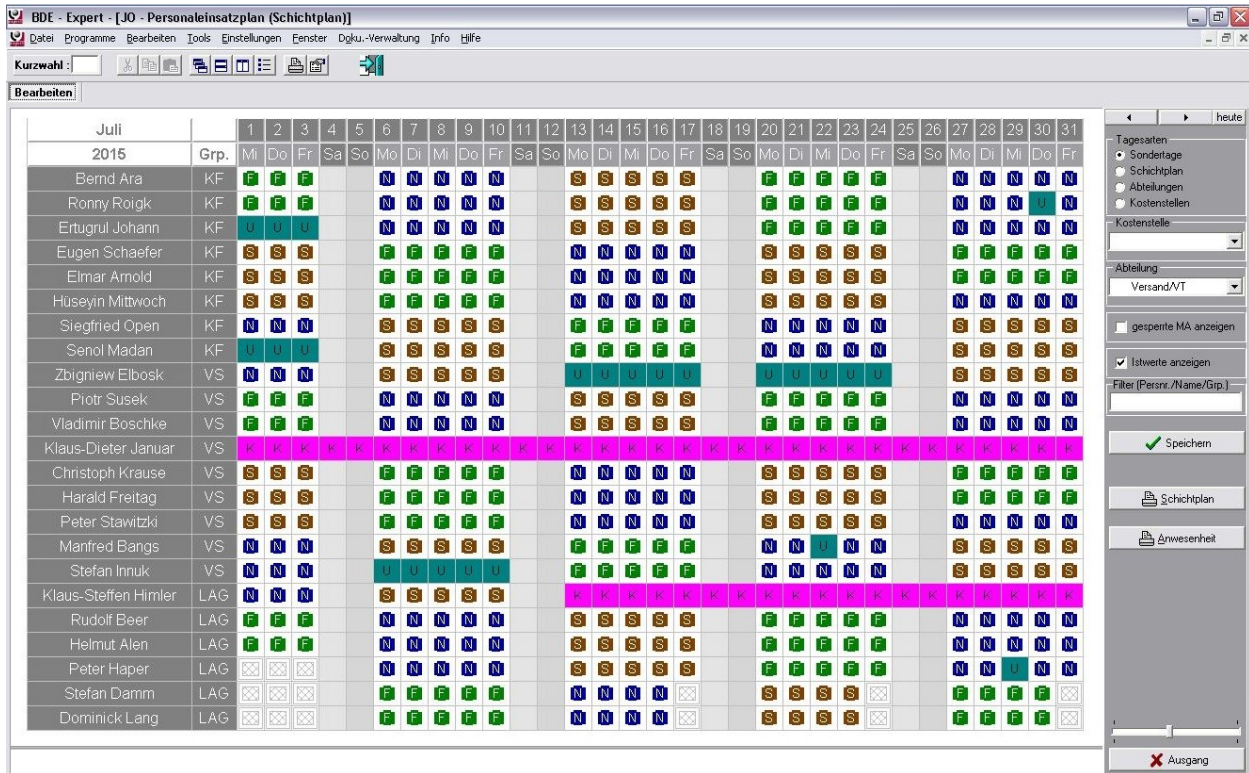


Image - view of the planned staff occupancy by department (upper table) and selected time horizon. Illustration of the planned shifts (working time models) with indication of the missed days. Indication of planned and actual operating times per employee and department for the set planning period.



Image – Annual employee schedule overview data

Example dialogues - Access control

Hardware configuration for access control.

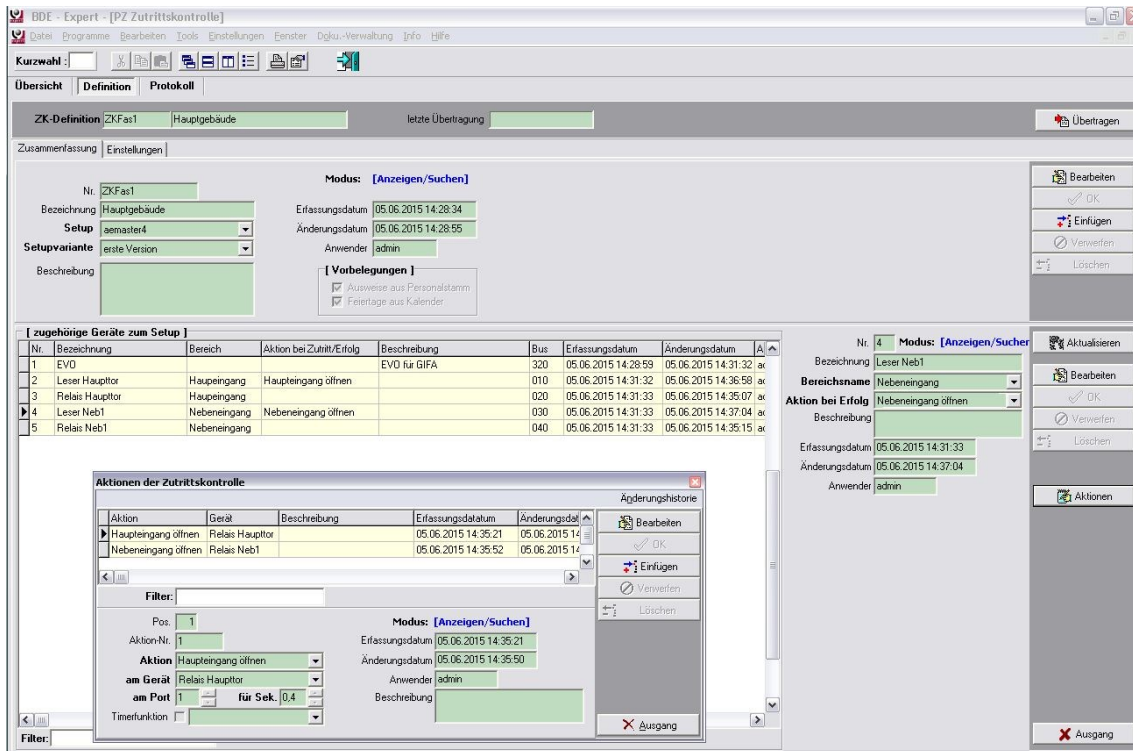


Image – - Reading device configuration, location and procedure

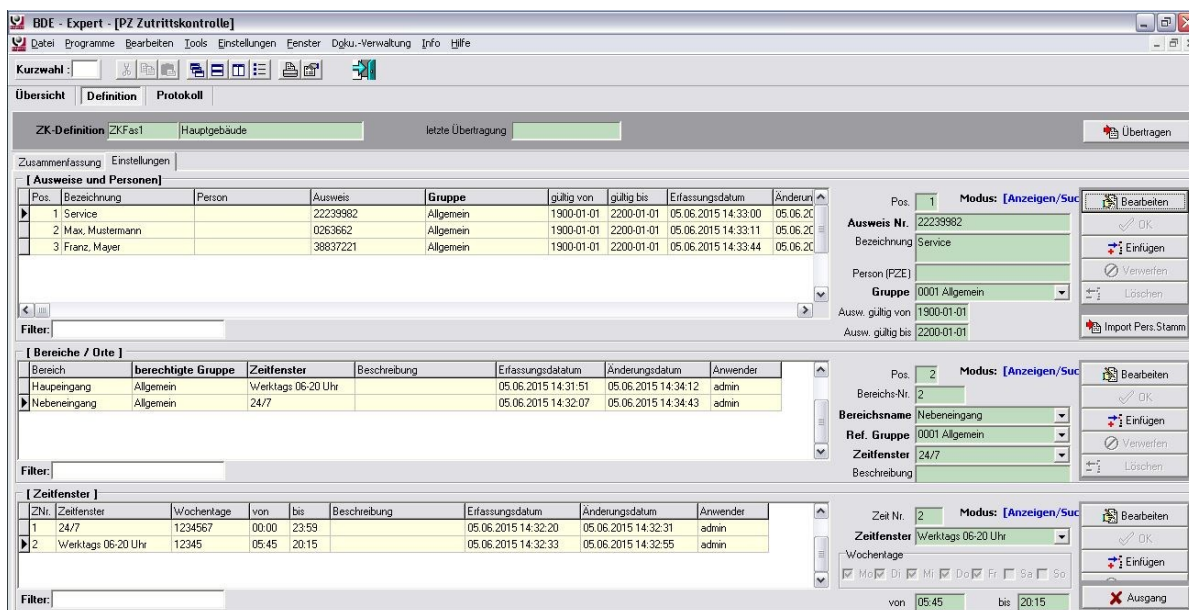


Image – Definition of reading devices, their location and actions on events

BDE – Auftragszeiten und –mengen / Gemeinkostenzeiten / Materialverwaltung

The BDE - module supports you perfectly in the optimization of the manufacturing. The order times/quantity administration books the actual times and quantities to the operating sequence of the current production order and informs you therefore about the accrued costs (concurrent accounting) and the manufacturing progress. Overhead costs times can be assigned to a cost centre, a project or an order for overhead costs. The system provides information over the achieved performance level. The material administration simplifies the handling of the stock item entries. All data are available if required online the ERP system.

Highlights of the BDE module::

- Generation of production orders with production plans and manufacturing parts lists as carriers of the work order times and quantity management.
- Machine or workplace-related detailed planning functions (layer / sequence planning).
- Time near provision of material and wage slips (optional).
- Efficient and error free logging of the production times and quantities to the production order by the support of bar codes or rather RFID's.
- Logging of the overhead costs times (malfunction periods/general works) to an overhead costs order or rather for the cost centre.
- Stock requisition to an order or to the cost centre are locally seized and booked after release.
- The concurrent costing keeps you always up to date over the material and production costs incurred as well as the reached product profitability.
- Interfaces to the existing ERP system.



Generation of production orders with production plans

Sequence planning

**Time tickets /
Material removal bills**

**Order times /
quantities**

Overhead costs times

Stock transfers

Postt costing analysis

Interfaces to the ERP system

Overview – BDE- production data capturing - focus on order times and quantities

The process shows the integration of different recording systems in the field of personnel / MDE and order data collection.

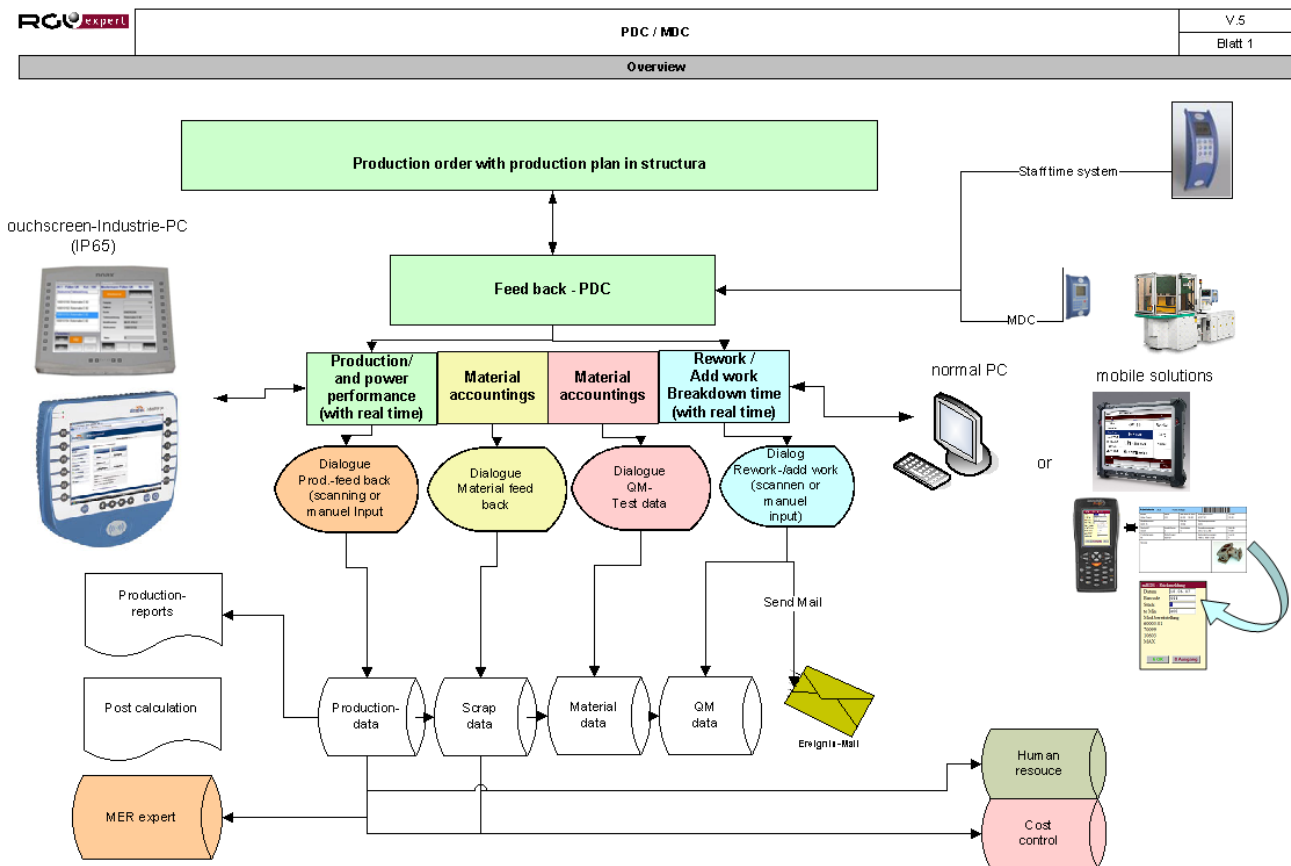
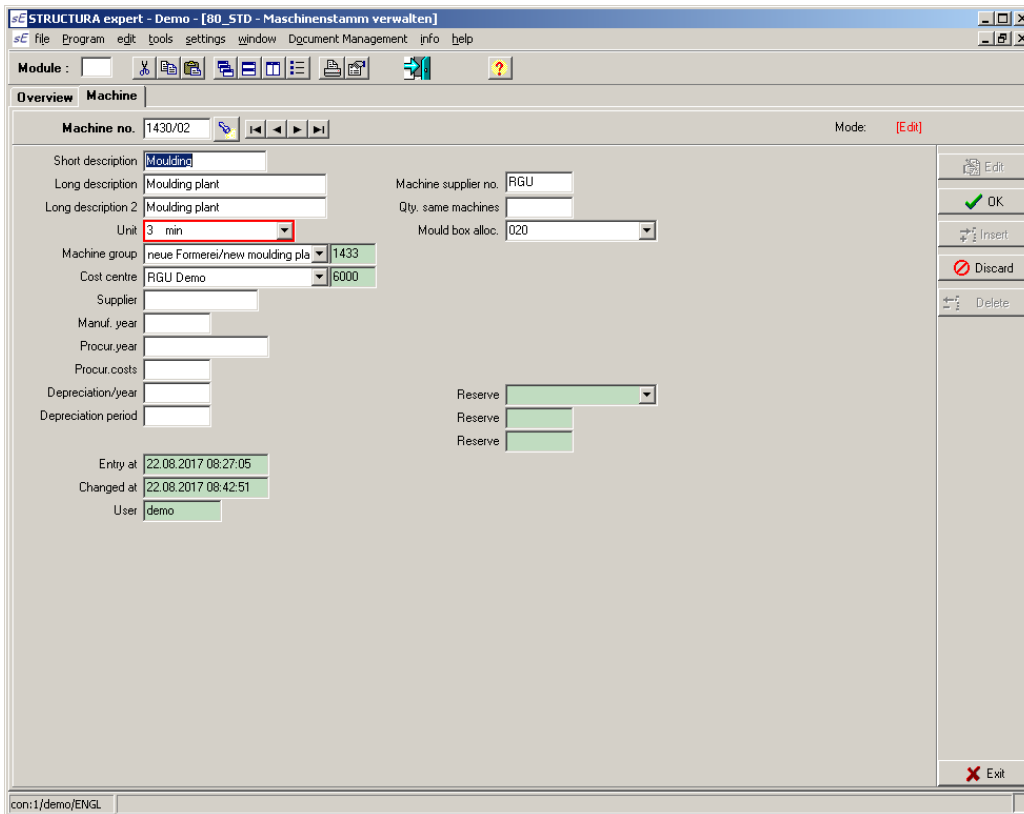


Image - Overview - Integration

Production data capturing master data management with BDE expert

All of BDE expert features rely on master data, which have to be entered once (usually at system implementation). All data can also be transferred from the ERP/PPS system using interfaces.

Machine master data



The screenshot shows the 'STRUCTURA expert - Demo - [80 STD - Maschinenstamm verwalten]' window. The 'Machine' tab is active, and the 'Machine no.' is 1430/02. The 'Mode' is 'Edit'. The form contains the following fields:

- Short description: Moulding
- Long description: Moulding plant
- Long description 2: Moulding plant
- Unit: 3 min
- Machine group: neue Formerei/new moulding pla
- Cost centre: RGU Demo
- Supplier: 1433
- Manuf. year:
- Procur. year:
- Procur. costs:
- Depreciation/year:
- Depreciation period:
- Machine supplier no.: RGU
- Qty. same machines:
- Mould box alloc.: 020
- Reserve:
- Reserve:
- Reserve:
- Entry at: 22.08.2017 08:27:05
- Changed at: 22.08.2017 08:42:51
- User: demo

Buttons on the right include Edit, OK, Insert, Discard, Delete, and Exit.

Image – Machine master data in BDE expert

All required machines and work stations have to be entered in the machine master data program and cost centers have to be allocated.

Machine groups

STRUCTURA expert - Demo - [83 - Machine group]

File Program edit tools settings window Document Management info help

Module:

Overview machine group | **Machine groups/Down times/Calendar**

Machine group no.: **Status:**

Description 1 Performance efficiency in %
Description 2 Idle period factor
Production unit Cycle time correction factor
Breakpoint 1 in % Productivity level
Breakpoint 2 in %
Breakpoint 3 in %
Expiration period Changed at
Expiration factor User

Editing mode: [Edit]

Machine no.	Description	Unit	Changed at
▶ 1430/01	Formen	min	22.08.2017 13:51:08
1430/02	Moulding	min	22.08.2017 13:50:12

Image – Machine group master data in BDE expert

Multiple machine can be grouped in one machine group. Machine groups also contain the shift calender.

Work steps

STRUCTURA expert - Demo - [81 - Arbeitsgänge und Maschinenzuordnung]
File Program edit tools settings window Document Management info help

Module :

Overview Work cycles Machine allocation Sub work cycles

Working step no.

Status
Mode:

[General]

☐ Unterarbeitsgang

Short description
Long description 1
Long description 2
Production machine selection
Cost center
Wk. step swap group
No. of workers

[Costing]

Outside costing

Pool of costs-Prod. planning
Pool of costs-Sales
Pool of costs-Logistics

Base for Management-Sales
Base for scrap

[Scheduling]

Scheduling indic.
Calendar f. transition period

Report required

External processing
Melting
Setting up working step
Maintenance work cycle
Moulding box config. group
Manuf. doc. group

[Stock item entry]

to

Entry at
Change at
User

[Text]

Edit

OK

Insert

Discard

Delete

Duplicate

Exit

con:\1\demo\ENGL

Image – Base configuration of work steps in BDE expert

Entered work steps with a machine allocation. Multiple work steps can be allocated to one and the same machine.

Article master data with method plan and equipment

Image – Article master data

The article master data consists of basic data which is imported from the overlaying PPS system.

Seq.	Process ind.	Process no.	BA	Ma	Description	BA	Qu.	Unit	BA
1		Material from article m					1,000	Qty.	
5		Work step	R-0105				4,000	Qty.	
10		Work step	R-0004		1310		0,000	kg	
30		Work step	R-0002				216,125	kg	
40		Work step	R-0002				1,000	Qty.	
50		Work step	R-0003				4,000	Qty.	
60		Work step	R-0005				1,000	Qty.	
70		Work step	R-0006				4,000	Qty.	
80		Work step	R-0007		1310		0,000	kg	
90		Work step	R-0008				216,125	kg	

Image – Work step and equipment allocation using the method plan

Work steps and equipment is allocated in the so called “Method plan”

Equipment management (optional)

STRUCTURA expert - Demo - [70 - Equipment management]

File Program edit tools settings window Document Management info help

Module :

Overview Pattern master Equipm.item/similar equipm.

Equipment no: **Display for presentation** **Editing mode:** [edit]

[Overview - Items]

Item	Article no.	Variant	Active	Description	Alternative description	Limit mould no.	Articles prod.	Entry at	Changed at	User	
B	1	M-00017841/001	No	Yes	Display for presentation	Display for presentation	10000	950	17.08.2017 10:20:28	22.08.2017 08:53:40	demo

Item data Transaction Machine allocation Pool of costs for costing

Item no. ☐ Variante

Description

Alternative description

Construction type

Material

Status

Active ☒ Yes ☐ No

Equipment inventory

Core box inventory

No. of planes

Loose part

Gates

Gage

Core boxes

Templates

Limit shot/moulding quantity

Total no. of shots/mouldings

Perc. total mouldings [%]

Test interval QM (Qty.)

Duration pattern constr.

Plate-no.

No. of nests (Cavity)

Required area (cm)

Remark

User

Entry at

Changed at

Article no.

Pattern plate type

Bottom part no.

Upper part no.

Last pattern transaction

Date

Reason











con:\demo\ENGL

Image – Equipment management

1. Easy management of equipment data. Each equipment may contain several items.
2. Transparent equipment transfer data: Depending on the requirement, each movement/transfer of the equipment can be traced back.
3. Machine allocation: Allocation of machines on which the equipment can be used. (Validity check for detailed planning)

STRUCTURA expert - Demo - [70 - Werkzeugverwaltung]

File Program edit tools settings window Document Management info help

Module:          

Overview Pattern master Equipm. item/similar equipm.

Equipment no. Display for presentation Editing mode: [\[Browse\]](#)

[Overview - Items]

Item	Article no.	Variant	Active	Description	Alternative description	Limit mould no.	Mouldings	Entry at	Changed at	User
▶	1 M-00017841/001	No	Yes	Display for presentation	Display for presentation	10000	950	17.08.2017 10:20:28	17.08.2017 10:20:28	demo


Item data Transaction Machine allocation Costing cost block

[Machine allocation]

Machine no.	Description	Text
▶ KS-004	Injection machine	Display

[Edit]

Editing mode: [\[Edit\]](#)


Machine no.  Injection machine


Text


Entry at


Changed at


User


 Edit

 OK

 Insert

 Discard

 Delete

 Exit

ID: 1 | demo | ENGL

Image – Equipment – machine allocation dialogue

The featured document management system can be used to upload and save text and image files.

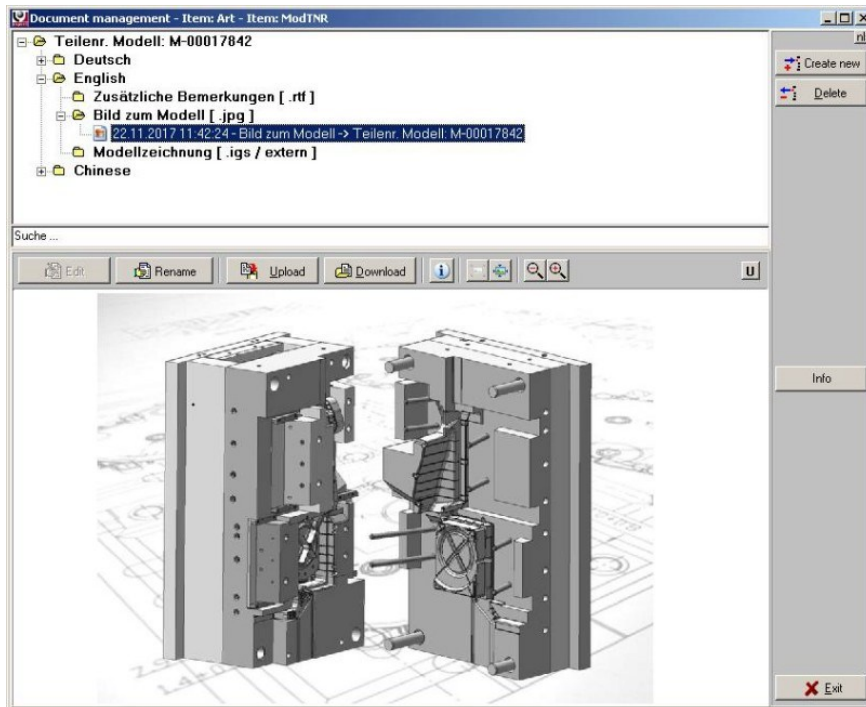


Image – Document management for the equipment master data

Equipment transfer dialogue (equipment check, withdrawla etc.)

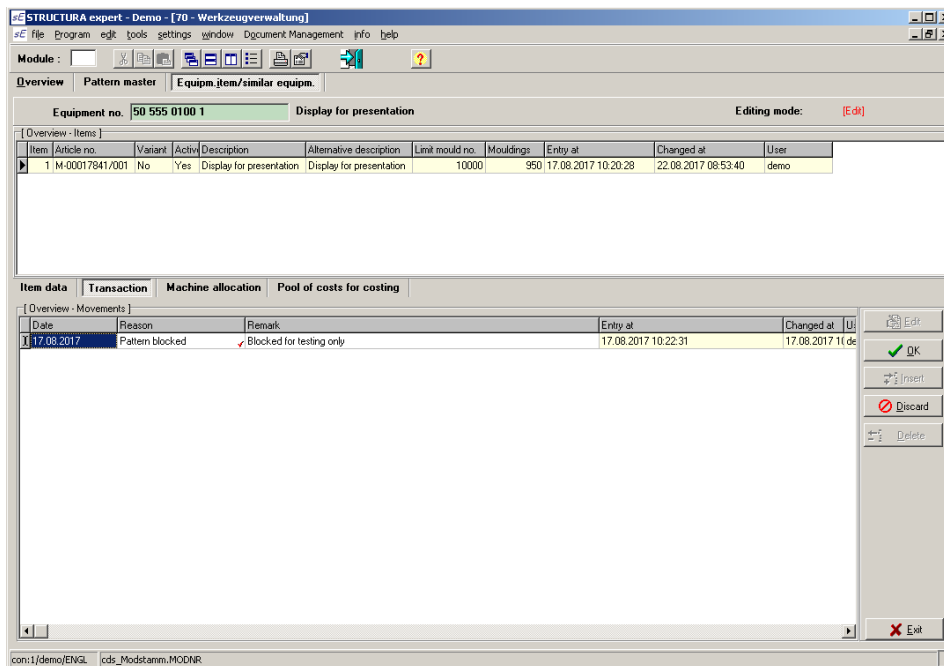


Image- -Equipment transfer dialogue







Production order data

Generating production orders is done using interfaces with the overlaying PPC system. BDE expert delivers detailed information on the production status and saves all data for a multitude of analysis requirements, such as information on production duration and down times, which all can be used for post costing analysis.

Production order


STRUCTURA expert - Demo [D1 - Production order management]

File Program edit tools settings window Document Management info help

Module:      

Overview | **Production order** | **Production order lot**

Prod. order no. 11-02261.001	Customer no. R-0100 RGU Expert GmbH	Status 0 Recorded	Edit mode: [Edit]
Order no. 11-02261 , 1	Material no. R-0001	Changed at 06.09.2017 13:10:27	User demo
Article no. R-0100	Pattern no. 245-14		
Drawing no. 001-1009R	Order no. item		



General | **Dispatch** | **Tests** | **Plan**

Manuf. process **0 General (material, additives...)**

Article family **0 General**

	Status:	Changed at	User
Dispatch wght. (kg)	2 weighted	06.09.2017 13:10:27	demo
SP chips (kg)	0		
Gross weight (kg)	2 weighted	06.09.2017 13:10:27	demo
Return scrap (kg)	0.0039		
Casting weight (kg)	1 calculated	23.06.2014 16:43:09	arnold

Order type **FE Production order**

Description **Display zum Präsentieren von CDs**

Customer article no. **4711**

Customer article descr. **Display für Softwarepräsentation**

Revision status **23.06.2014 16:27:37**

Revision index **0**

Call order **0 No**

[Quantity]

Ordered	schedule	Acc.tolerance
500		
Poured 0	Rdy dispatch 0	Scrap 0

Nests/mould 0	Casting length (mm) 0 S ▾	Material no. R-0001	
Qty. of cores 0	Casting width (mm) 0 S ▾		
Share of mould 0	Casting height (mm) 0 S ▾		
Drawing no. int.	Avg. wall thickness (mm) 0		
Moulding box type			
Box Length (mm) 0 Width (mm) 0			
Drag height (mm) 0 Mid1 (mm) 0			
Test plan	Mid2 (mm) 0		
	Cope (mm) 0		
	Scrap casting % 0		
Max. daily lot size (Pc) 0	Scrap machining % 0		

Heat treatment type **0008 Machined**

Delivery condition **0008 None**

Test certificate **0001 8421 99 00**

Merchandise group **0002 Railway technology**

Customer group **0002 Railway technology**

Casting Signature **1 Casting date Day/Month/Year**

con:2/demo/ENGL

Image – Example of an in-house production order

Production order scheduling according to delivery schedule

Scheduled dates

Scheduling

Sub order/BOM

File Program edit tools settings window Document Management info help

Module:

Overview | Scheduling | Graph. lead time sched. | Gantt-diagram

Prod. order no. IF11-00153.001

Customer no. 0000

Article no. R-0100

Pattern no. 245-14

Order type IF Inhouse production

Purch. order

Description Display zum Präsentieren von C

Material no. R-0001

Dispatch weight 0.0398

Pouring weight 0.0437

No. pattern/mould 0

% Scrap machining 0

Gross weight 0.0398

Ret. scrap weight 0.0039

Max. daily lot size 0

% Scrap casting 0

Status 3 Scheduled

Del. sched. order 1 Yes

Entry at

Changed at 06.09.2017 13:18:37

User demo

[Lot overview]

Lot	Date	Piece	Status
1	10.10.2017	600	Scheduled

Insert

Delete

[Delivery lots]

Lot	Date	Piece	Prod. plan. d

Ord. no. item

Status

Cancelation

Book

[Lot information]

Lot no. 1

Start date 02.10.2017

Lot type 0 Serial delivery

Poured 0

Changed at 12.09.2017 09:47:12

Piece 600

End date 10.10.2017

Status Scheduled

Rdy. for dispatch 0

Entry at 12.09.2017 08:33:39

Mode. schedule

Need item 0

Status date 12.09.2017 09:47:09

Scrap 0

User demo

Scheduled dates

Scheduling

Sub order/BOM

Start	Trans.	ps	Overt.	tim	Daily	lot	Util.	%	Need%	Seq	Process	Description	Machine	Unit	Prod. tr	Occup.	Lead time	Occup. tim	Lead t
09.10.17	10.10.17	16	0	0	0.00	0.00	30	R-0008	Ready for dispatch	Assembly	min	0	0	0.0	0.0	960.0			
09.10.17	09.10.17	2	0	0	0.00	0.00	70	R-0006	Glue on rubber base	Assembly	EUR/Stü	0	0	0.0	0.0	120.0			
09.10.17	09.10.17	1	0	0	0.00	0.00	60	R-0005	Glue hinges	Assembly	EUR/Stü	0	0	0.0	0.0	60.0			
06.10.17	09.10.17	2	0	0	0.00	0.00	50	R-0003	Laser	min	0	0	480.0	120.0	240.0				
05.10.17	06.10.17	1	0	0	0.00	0.00	40	R-0002	Sawing	Belt saw	min	0	0	1800.0	450.0	510.0			
02.10.17	05.10.17	4	0	0	0.00	0.00	30	R-0002	Sawing	Circular saw	min	0	0	2400.0	600.0	840.0			
02.10.17	02.10.17	0	0	0	1.85	0.00	10	R-0004	Pulling	Big pulling machine	min	0	0	240.0	80.0	80.0			
02.10.17	02.10.17	0	0	0	0.00	0.00	5	25140	Formen/Moulding	min	0	0	0.0	0.0	0.0				
02.10.17	02.10.17	0	0	0	0.00	0.00	1	R-0001	PS transparent	Moulding plant	kg	0	0	0.0	0.0	0.0			

Start date

End set up

End mach.

End date

Cancelation

Delete

All works

Open ones

Reschedule

Ext. process

Exit

Image – Example of simple scheduling

Detailed planning using the planning board (optional)

Based on production orders and defined shift models, the extra feature of a detailed planning using a planning board is usable. The scheduled sequence of each production order is displayed graphically for each machine. The planning board can be zoomed in and out of in different time scales.

Detailed planning

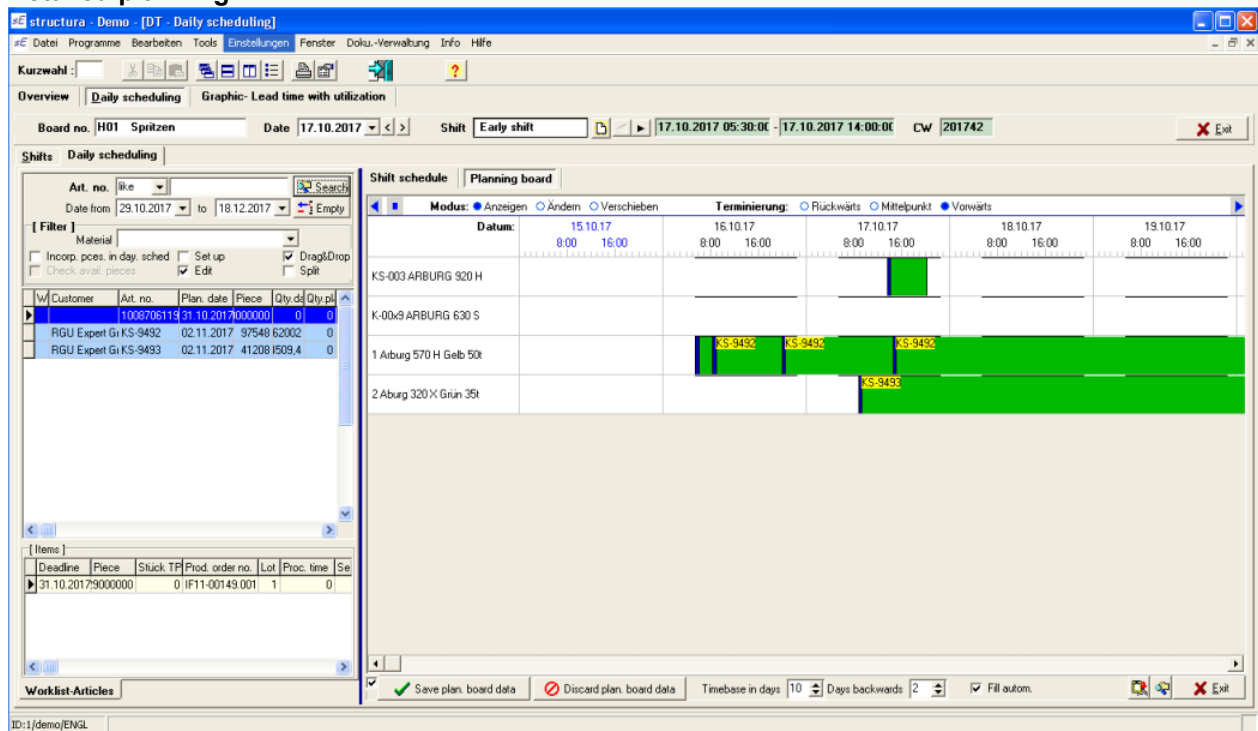


Image – Production order scheduling using the planning board

The detailed planning can be used to pause or reschedule already scheduled production orders. The planning board can be linked with machine data feedback, showing production progress, thus enabling a comfortable, remote production overview. Depending on used configuration, the delay in production triggers an automated rescheduling of the subsequent production orders. For additional views on detailed scheduling see chapter „Evaluation“.

BDE-examples – Feedback using touch PC

Menue on a Touch-PC



The touch PC menue is designed for easy operation. The whole menu is configurable and work steps can individually be allocated to feedback stations. The type of feedback can also be configured, be it a start/stop feedback, downtime feedback with reason, production feedback including scrap feedback.

Login	Max, Müller	
Task	Machine	Programs
Core Production	Lampe	Feedback
Moulding		Fault Feedback
Casting		Work list
Fettling		
Painting		
Laser		
Drill/Cut		
discard	exit	

Do 29.06.17 12:34 VM-ARNOLD-EC / 00aaa

Image – Touch PC menue

After the employee logs in, the work step for the feedback is selected. The employee then selects the production machine/work space (middle section) and selects the feedback type (normal feedback, downtime feedback or work list)

Work task list

All pending tasks are displayed in a task list depending on the selected machine. A production order is selected via the screen. Alternatively, a bar code can be scanned.

[illegible]

Image – Touch PC production order selection

Production feedback

Production feedback can be handled with a start-finish-feedback or a quantity based feedback can be configured. The worker here either gets a list of production orders displayed, or types in a production order number or article number. The same goes for scanning barcodes.

Max, Müller		Casting		/	
Barcode		R-0100			
Part no.		R-0100			
Description		Display zum Präsentieren von CDs			
Model		245-14			
Order					
QTY.		0			
Batch				Reread	
discard				exit	
Do 29.06.17 13:46		30 / VM-ARNOLD-EC / 00aa			

all tasks

Teilenummer

R-0100 ▶

Start

break

done

cancel

Image – Example of a start/stop production feedback

Image – Example of the „Work done“ feedback with quantity input using an on-screen keyboard

Image – Example of scrap reason selection

Downtime feedback

Max, Müller		Fetting		/	
Barcode	4 0031 0013 1				
Part no.	14 0031 0013 1				
Description	Spindelgehäuse				
Model	625 005 01 00				
Order					
Reason	Wartung				
Time	15				
done					
discard					exit
Do 29.06.17 14:08		3Q / VM-ARNOLD-EC / 00aae			

Image – Downtime feedback display

Downtime and overhead cost feedback can be assigned to each production order or just by cost centre. The selection of a downtime reason and overhead cost can be mandatory or optional.

Document management on the Touch-PC

Using the „document management“-feature, recorded documents (pictures, working instructions etc.) can be displayed.

Herrmann, Jürgen		Rüsten Spritzen		Arburg 570 H (gelb) / 1	
Barcode	KS-9493				
Teilenummer	KS-9493				
Bezeichnung	Halter APS VAL AU33X				
Modell	KS-0262				
<div> <div>Dokumente</div> <div> zum Artikel -> Artikel-Nr: KS-9493 </div> <div> <ul style="list-style-type: none"> Ausschuss Angusshof Ausschuss Einfallstellen Ausschuss Fliessnaht Ausschuss Freistrahlbildung Ausschuss Glanzgraduntersch Ausschuss Gratbildung Ausschuss Lufteinschluss Ausschuss Schallplatteneffek </div> </div>					
Verwerfen	<input type="checkbox"/>		▼	▲	Ausgang
Di 09.10.18 12:52		KU / DESKTOP-9VGNHSG / C			

Image – Document management on the touch PC

BDE – mobile data capturing

RGU Expert provides you with the possibility to operate production data acquisition and visualization via 1D/2D barcode or RFID identification on a mobile device.



- Data capture via wireless LAN or optional GSM / GPRS is possible on the entire company property
- no download and upload of data - always up to date of production (real-time feedback)
- Validation checks always relate to current data in the database
- Browser application - simple design of dialog
- Management of applications on the server provides simple administration and support

Mobile use on the entire company property

Online Data Validation

Easy to use - Browser Application

Integrated Barcode and RFID - capture

Application examples - mobile data capture

Application areas of mobile data recording is available on the entire production line and the movement of goods. Be it as mobile information terminal, a feedback system in production or for commissioning.

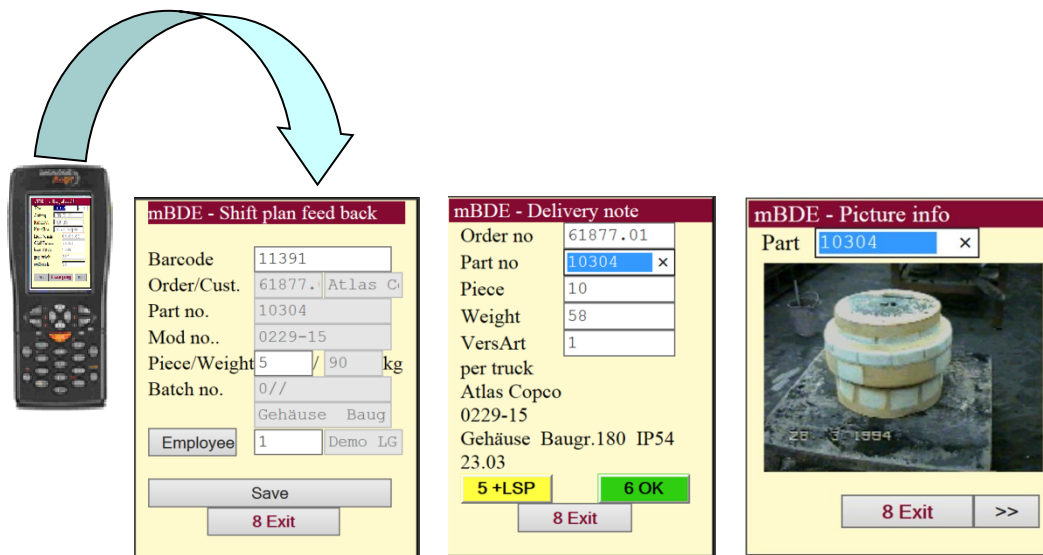




Image – Browser application - free design of the dialogues (HTML)

- **Warehouse and equipment management**
with model Storage and Stock removal and model delivery notes and information on the state of the model.
- **Order overview and production progress indicator**
always shows you the current status of production and provides an overview of yet to be produced orders.
- **Feedback of work processes**
The mobile BDE offers a, on foundry conditions customized, real-time production control tool.
- **Mobile information system for pictures and work instructions**
This Image information is available in the parts master, model and work process.
- **Dispatch modul**
From the commissioning, delivery notes to the consignment note printing this module makes your Dispatch mobile.

BDE expert – Secure management of production data - 28 -

Working step card		25,2 Formen HWS		
Customer Atlas Copco	Quantity 100	Crossweight 60,00 90,00	Prod. order no. 61877.01	Date 31.15
Pattern no. 0229-15		Part no. 10304	Drawing no. 0229	
Material GG25	Core quantity 2	Core boxes 0	Casting dimension 330 x 64 x 288	Barcode no 11391
Product group 93	Pattern store 022412	Moulding box dimension 1000 x 1000 x 520		Lot no. 1
Comment		 		

mBDE - Shift plan feed back

Barcode
11391

Order/Cust.
61877.01 Atlas C

Part no.
10304

Mod no..
0229-15

Piece/Weight
5 / 90 kg

Batch no.
0//

Gehäuse Baug

Employee
1 Demo LG

Save

8 Exit

Image – mobile data capturing.

Article identification via RFID and mobile reading devices

▪ RFID tags on metal

Special RFID tags are attached to a particular operation on the parts and thus enable:

- the rapid identification of the part,
- the indication of the current production status,
- the indication of information about further processing steps,
- the capture of feedback.

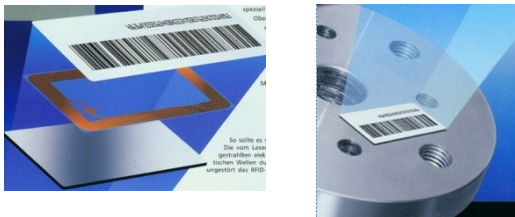


Image – special tags with iron shielding on the backside

• Application of capturing devices and data exchange

A mobile capture device reads the RFID tag, identifies the part and exchanges current data with the PPS server via the mobile network.

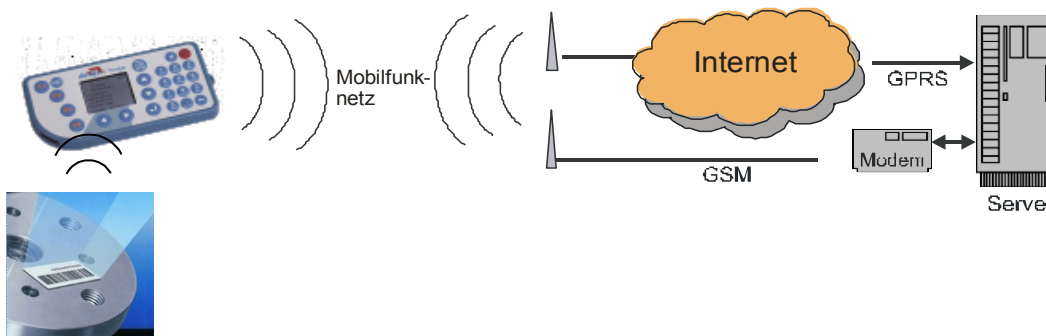


Image – mobile data capturing using RFID

▪ stationary data capturing

With special reading devices (LF Long Range Box), it is possible to read RFID tags on metal parts over longer distances (up to 3.5 m). Thus, areas in the Company can be set up where it will be automatically identified and reported (eg, locks on truck transit).

MDE – Maschinendatenerfassung

- The machine data capturing keeps you up to date about the machine condition and possible malfunction or non-operation periods. If necessary, the machine uptime can be optimized:



- Management of machine setup parameters
- Connections over SPS controls and professional BUS connections (DP-coupler)
- Management and control of article specific machine parameter data
- Acquisition of machine run times, malfunction or non-operation periods
- Storage of data in its own MDE database
- Optimization of machine run times - e.g. by employment of intelligent transport systems
- Visualization of critical production areas (manufacturing layout)
- Visualization of machines and aggregates(Dashboard)
-

**Machine-Setups
and machine parameters**

Machine connection

**Machine runtimes
malfunction and dead-lock**

Optimization

Visualization of production

Application examples of machine data capturing MDE

The following examples show the hardware connection and data integration in BDE expert as well as some evaluation examples.

Application example of MDE connection using IO box

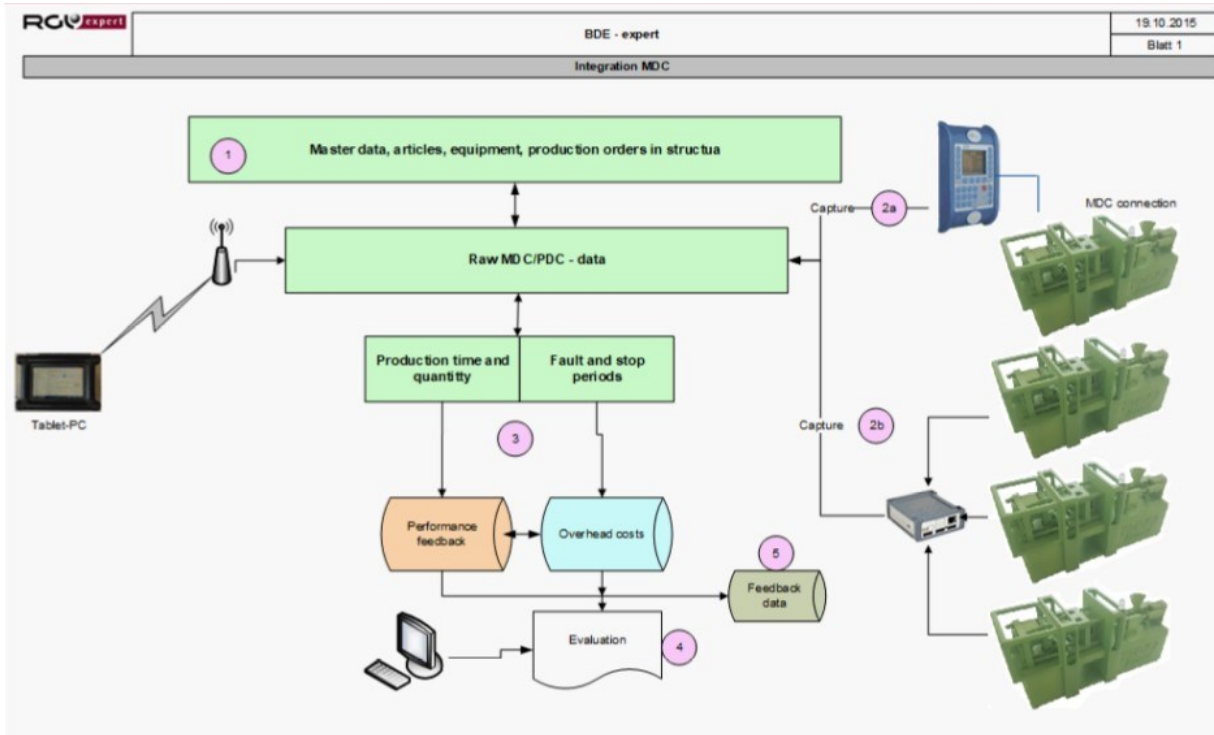


Image – IO box V4 machine data connection

Up to 16 production machines per IO box V4 can be connected to the network. The IO box V4 reads and saves all data including a time stamp, as raw data. A signal will be sent, when the machine enters a new production cycle. Exceeding a pre-determined cycle time, a warning signal will be sent. After the correction of the error, employees can enter a downtime reason and approve the machine for further production. Machine connection can be done by any skilled electrician. RGU expert offers to test any connection on-site.

Startet production orders and MDE raw data are allocated to each other on a time scale to create real production data feedback. Therefore, all production orders and machine data is documented.

Miscellaneous analysis reports are offered by the system. A special reporting tool allows for the creation of unique reports.

Evaluation example with graphical display

Example 1 – Machine uptime monitoring (ONLINE display)

Actual machine data for setup, production time and quantity, scrap quantity, downtime come together in BDE data tables and are displayed visually for the user. Extensive evaluation possibilities can be done using the Report Designer and Report Cube. OEE key figures can be determined in connection with planned values.



Image – Display of current machine data

Example 2 – Report Cube evaluation– Production and downtime comparison

Selektion:

Maschinengruppe between 3800 5100
Datum between 20120101 20121231

Kreuztabelle:

	Jahr, Felder	
ABG	2012	
	Produktionszeit	Störzeit
3.800,00	125.918,73	14.272,00
4.500,00	499.564,40	5.790,00
4.700,00	106.640,56	0,00
5.100,00	687.417,50	27.796,00
Gesamtsumme	1.419.541,19	47.858,00

Chart:

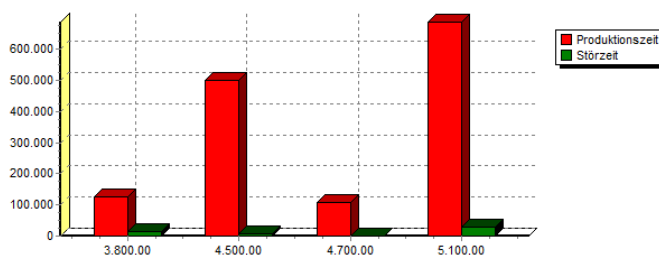


Bild – Report Cube – Production time (red) and downtime (green) comparison

Example 3 - Dashboard (OEE – key figures)

The OEE key figure display is crucial for the monitoring of groups of machines and single machines.

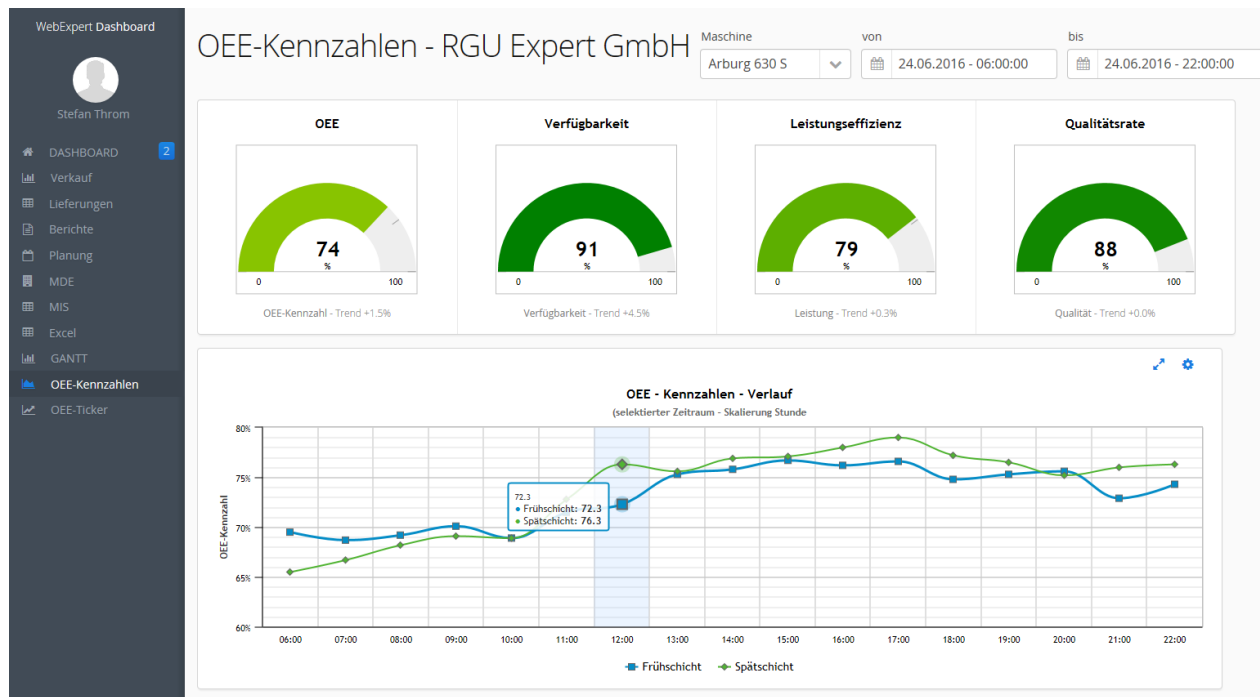


Image – OEE key figure display of a single machine

The evaluation report above for availability, efficiency, quality and the overall OEE key figure determines and displays all data as a chart (solid gauge). Different display colours can be used for different OEE limits. All data can be selected by date and machine.

Example 4 – Display of various machine data using the Dashboard

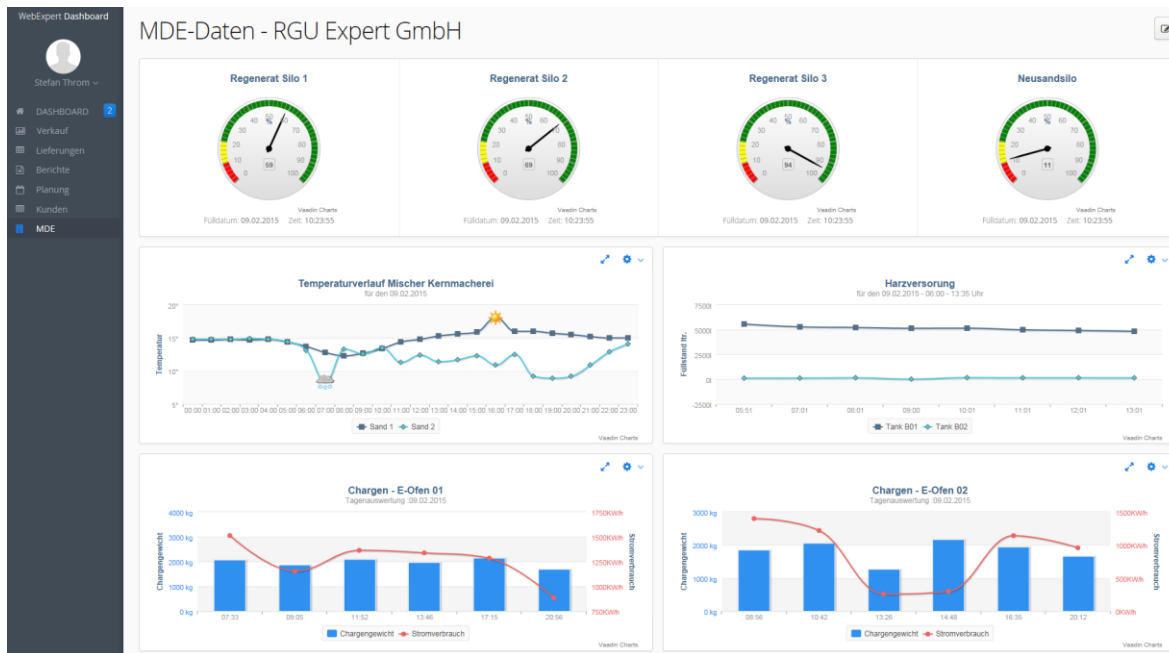


Image – Display of important production machines using the Dashboard

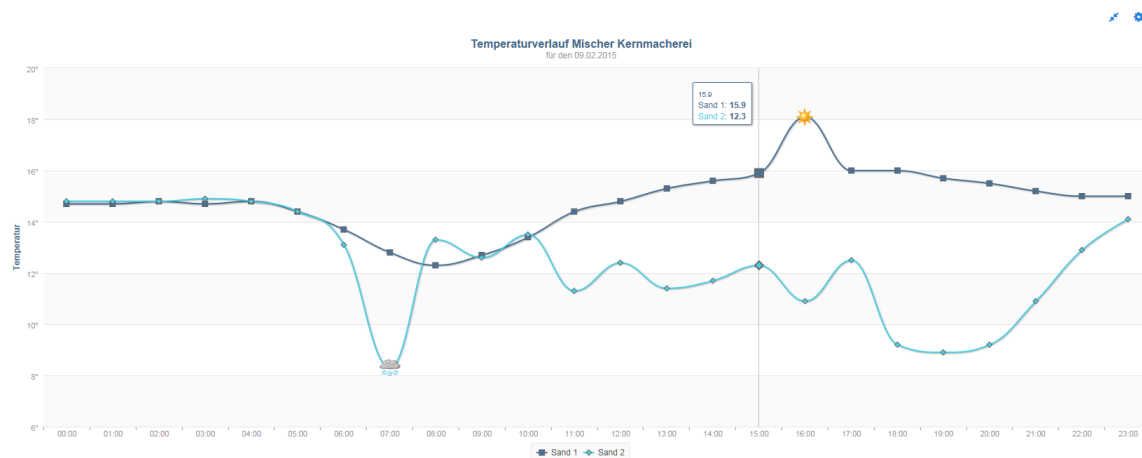


Image – Display of temperature of a sand mixer

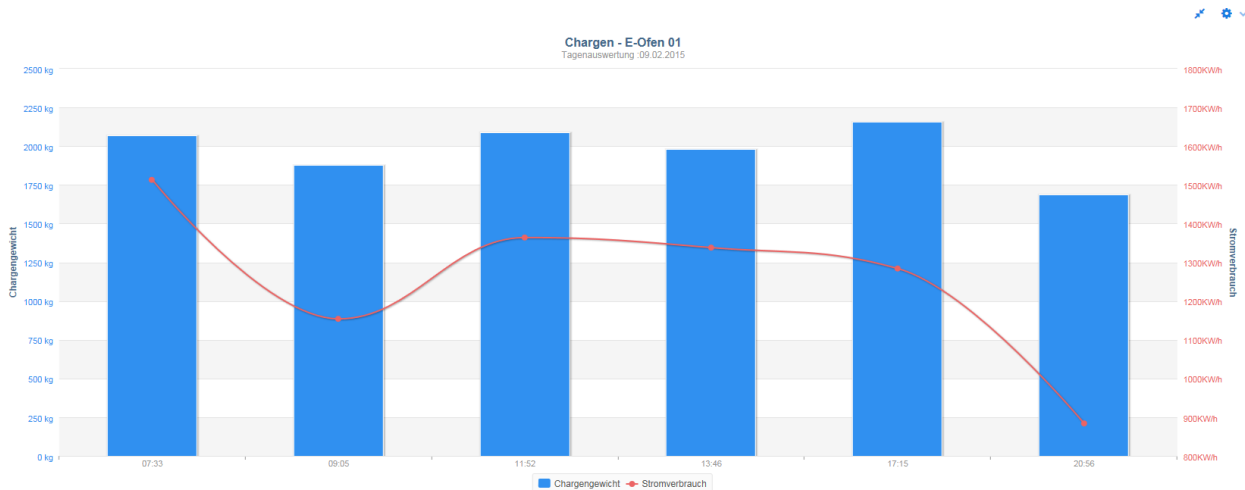


Image – Display of electricity use for each batch

Example 5 – Production visualisation (Hall monitor)



Image – Machine data and transprot system data with visualisation

Hardware configuration example

The following shows the integration of production and machine data in BDE expert, as well as data transfer with the existing PPC system.

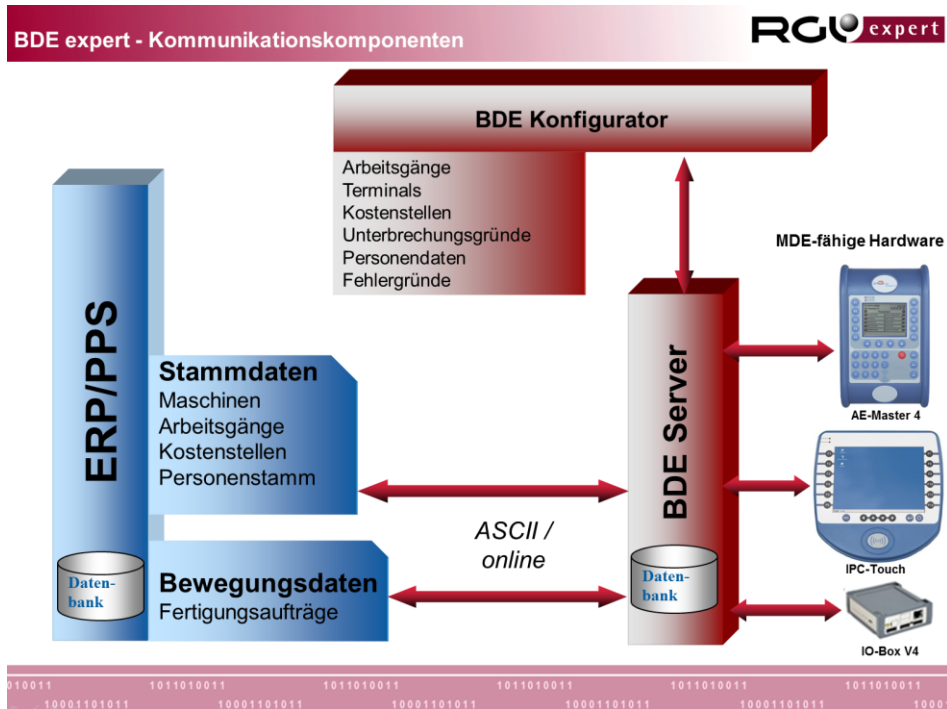


Image – Schematic of production and machine data connection dung

In terms of hardware, we use systems of the market leader (Datalogic DataFox, NOAX, DLoG, etc.), which have already proven themselves in practice for many years. RGU Expert has direct hardware-related connections to these devices.

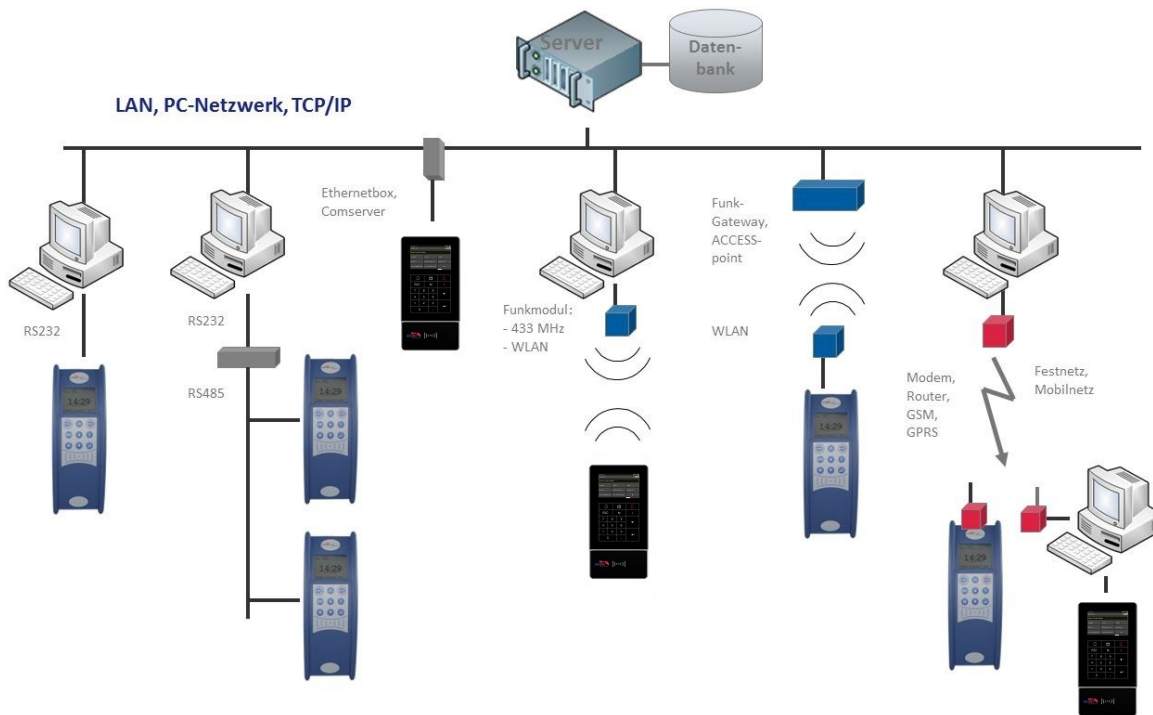


Image – Hardware integration overview

BDE expert – Secure management of production data - 38 -



Image - Examples - mobile capturing devices from Datalogic and DLoG

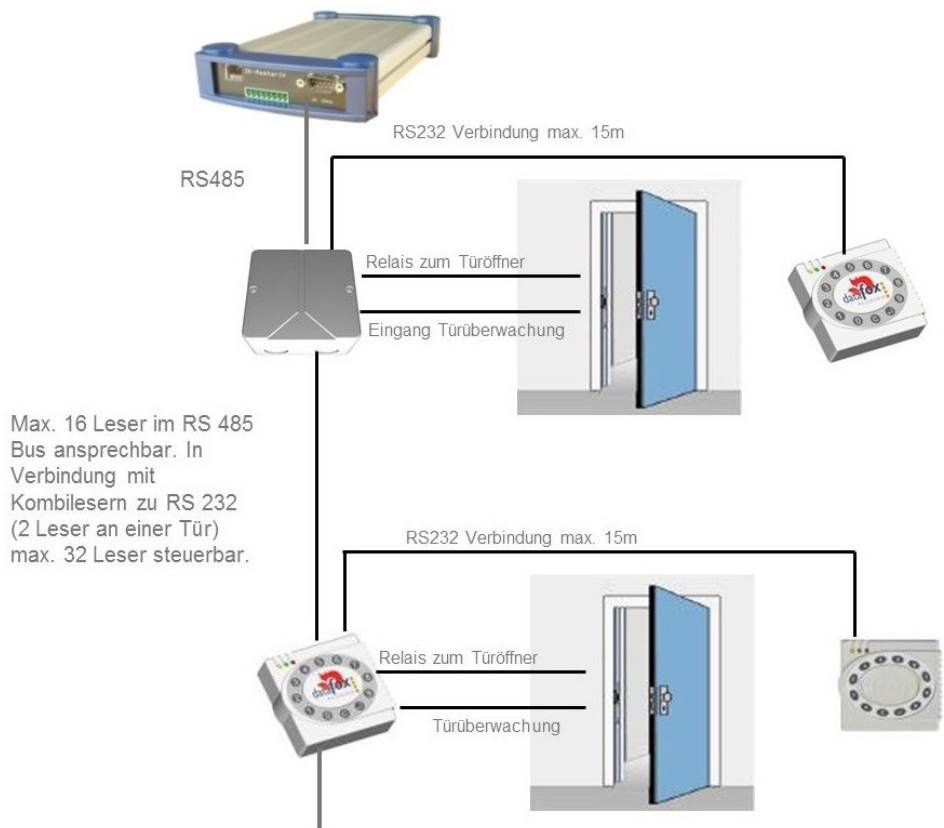


Image - Hardware to control an access control