PiWeb

Agenda

1 PiWeb

- PiWeb – General Overview and Background of Technology
- Data Formats and Interfaces
- Statistics
- Inline Metrology
- Language Expansion
- Integration of External Partners and Customers
- Examples

Overview

Integrated Statistic

Process Data

Worldwide Support

Multilingual, Unicode

Data Compresstion

LDAP Support for User Management

Templates for Plots

Offline Interfaces

Secure Data Connection: HTTPS

Performance and Scalability

Formplots, Pictures, Scatter-Plots From Measurement Data

Support PKI Login

Intuitive Report Generation

Inline Measurement Data, Correlation

Email Alerts

Contract Programming

CAD Support

Interactive Reports

Measuring Capabiltiy

Platform: 64 Bit

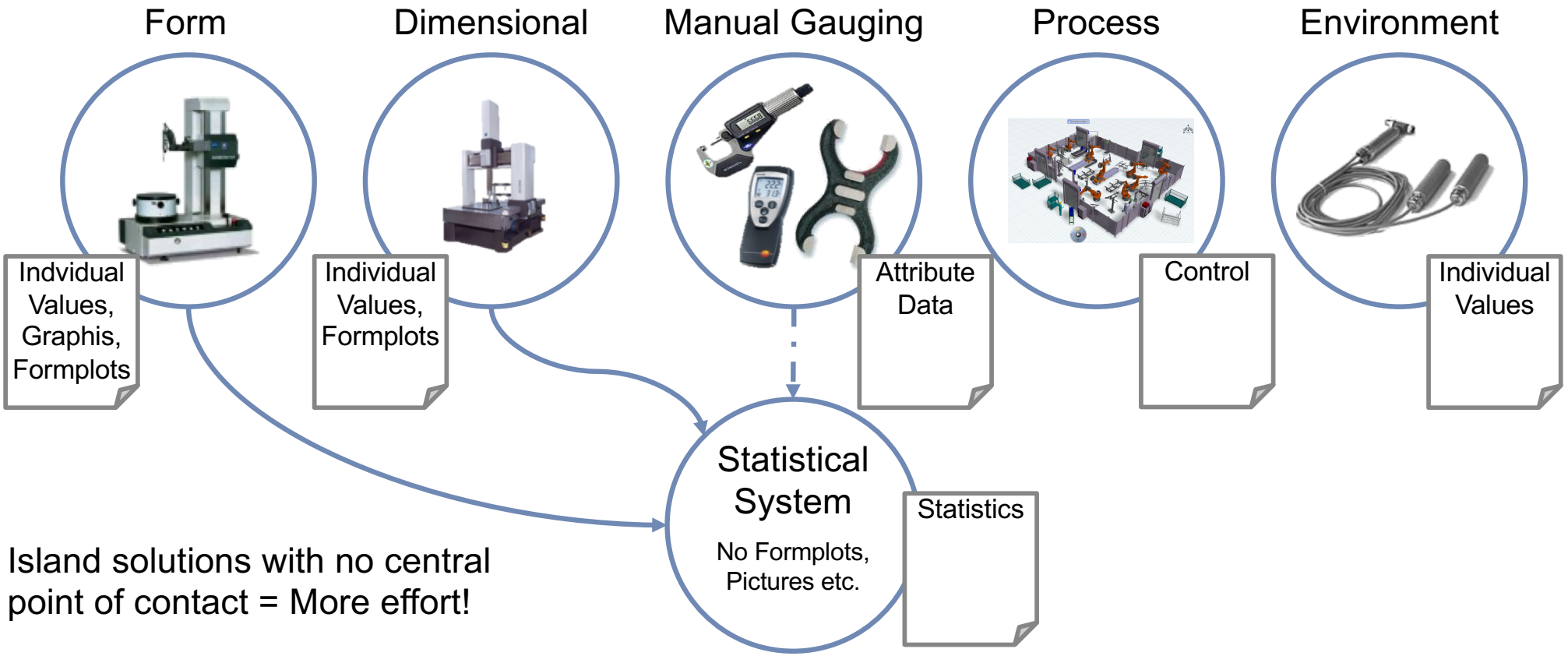
Connectivity to Hand Tools

Konzernberichterstattung

Specialists On-Site

Idea Behind PiWeb:

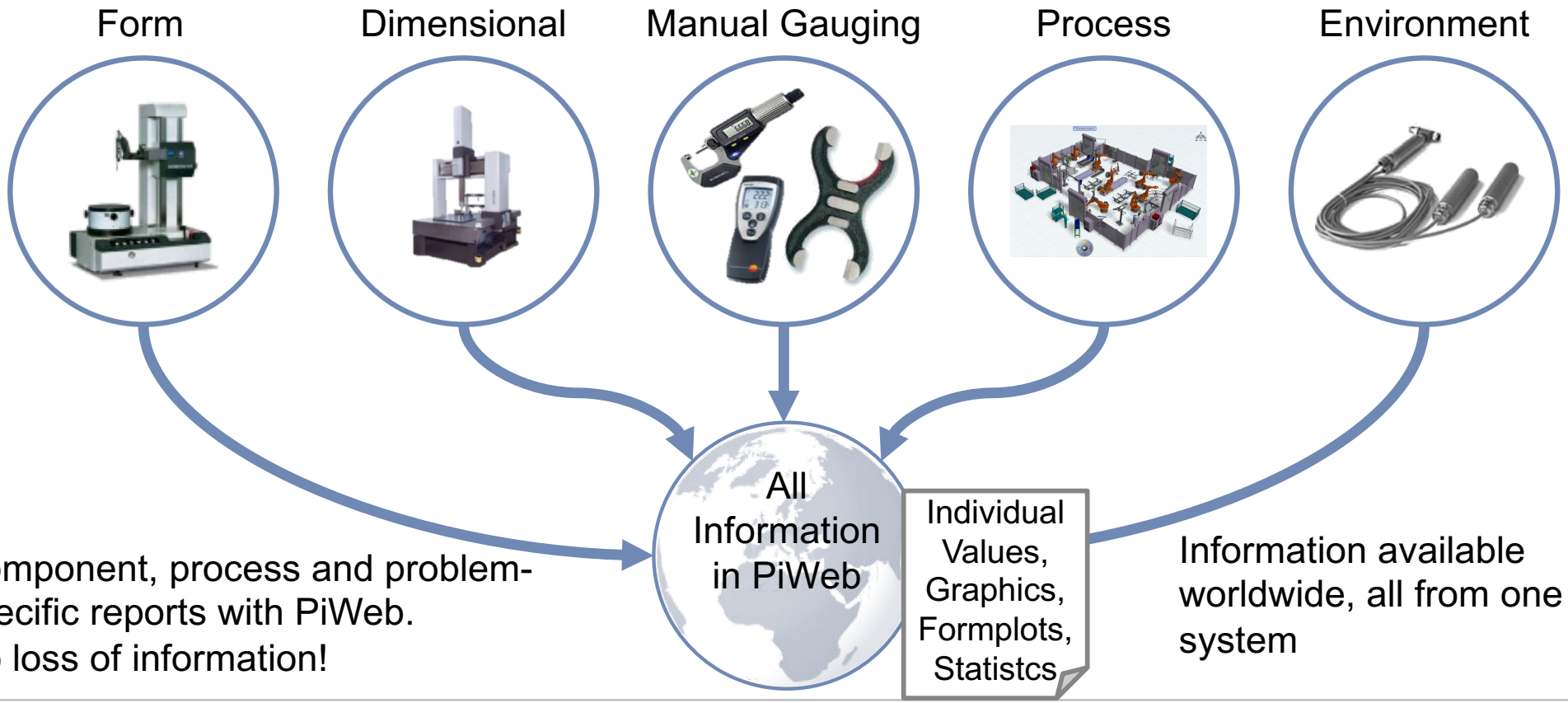
Information loss due to isolated solutions



Island solutions with no central point of contact = More effort!

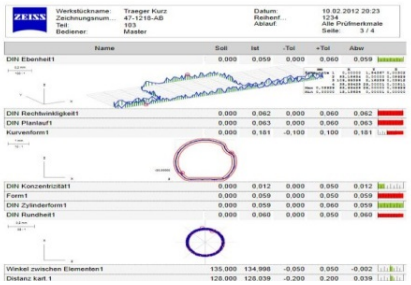
Idea Behind PiWeb:

Advantage – Solution for all data formats



Software System PiWeb

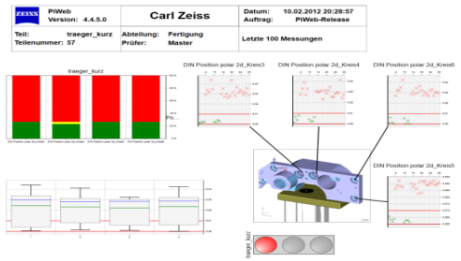
PiWeb BasicReporter



- Standalone
- Full Graphical Functionality
- Flexible Report Creation
- Integrated in Metrology Software
- No Databasee

CALIGO.
CALYPSO.

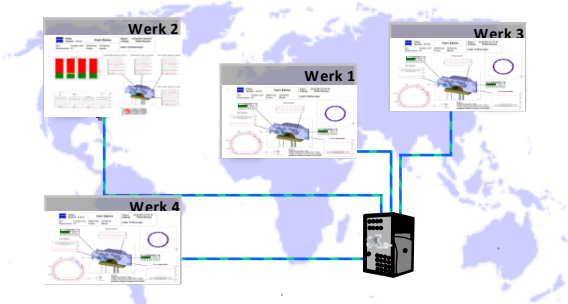
PiWeb FlexReporting



- Standalone
- Full Graphical Functionality
- Flexible Report Creation
- Direct Interface to Metrology Software
- Integrated Statistical Analysis
- No Database Installed
- No Network Configuration
- An „All in One“ Program
- File-based Backup of Data Possible

CALYPSO.

PiWeb

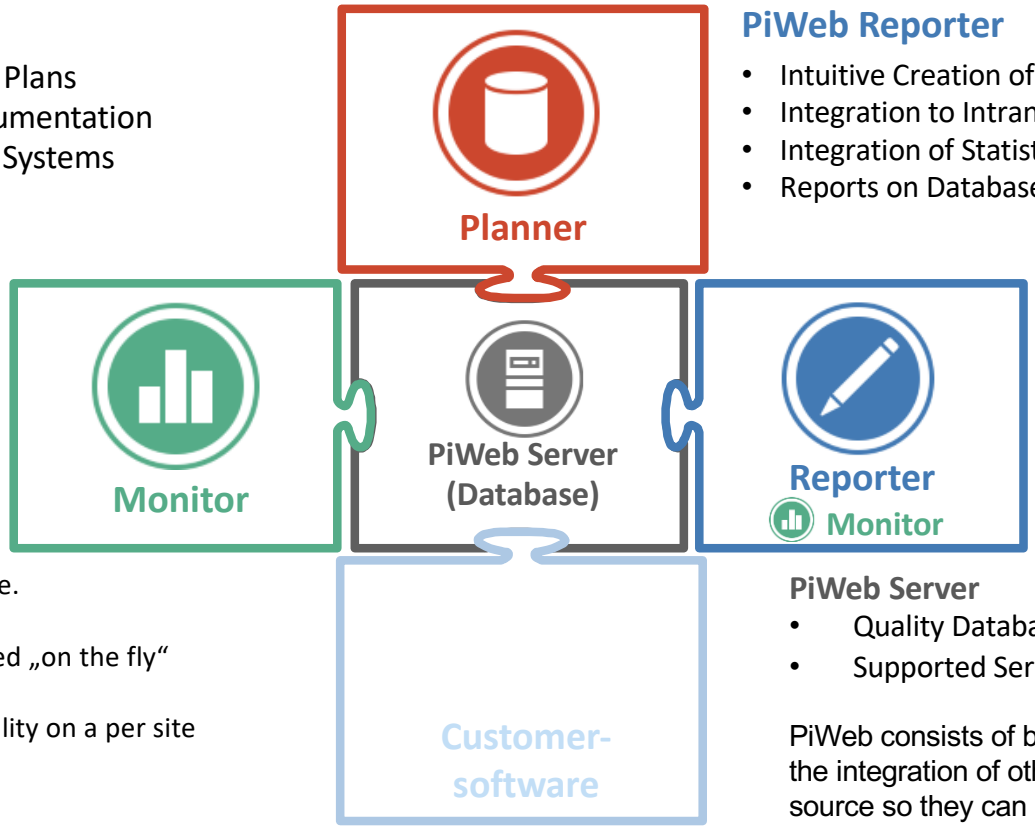


- Any Number of Devices can be Connected
- Full Graphical Support
- Flexible Report Creation
- Connection to Process and Quality Instruments
- Central Database Server
- Global real-time Evaluation Possible
- User Rights Management
- PiWeb Real Time Analysis Server

PiWeb Components

PiWeb Planner

- Create and Manage Inspection Plans
- Change Management and Documentation
- Inspection Plans from External Systems
- QS-STAT, CSV, DMO, .HOL



PiWeb Reporter

- Intuitive Creation of Meaningful Reports
- Integration to Intranet with no Extra Effort
- Integration of Statistical Parameters and Evaluations
- Reports on Databases for Global Evaluation

PiWeb Monitor

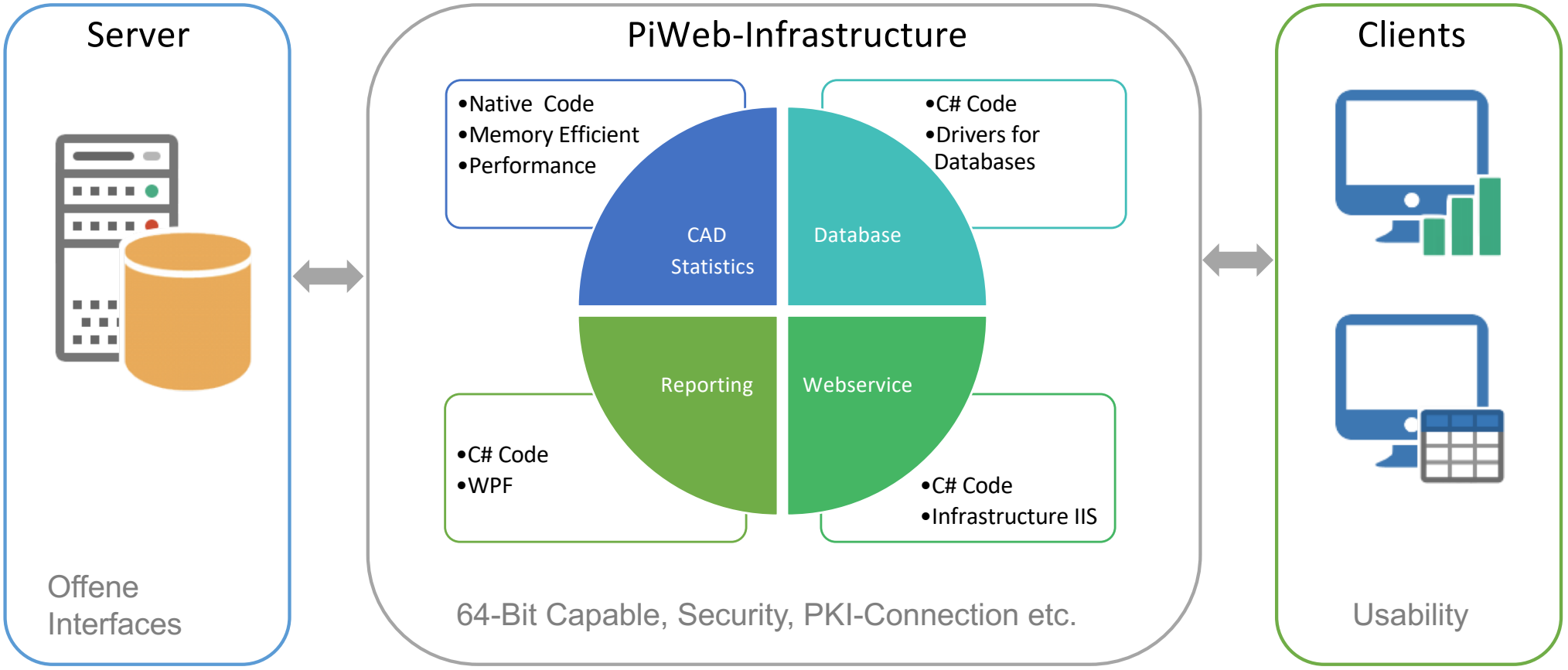
- Process Monitoring
  All quality data can be displayed live.
- Real-Time Display
  Measurements results are calculated „on the fly“
- Quality Assurance per Site
  With PiWeb Monitor the direct quality on a per site basis is possible

PiWeb Server

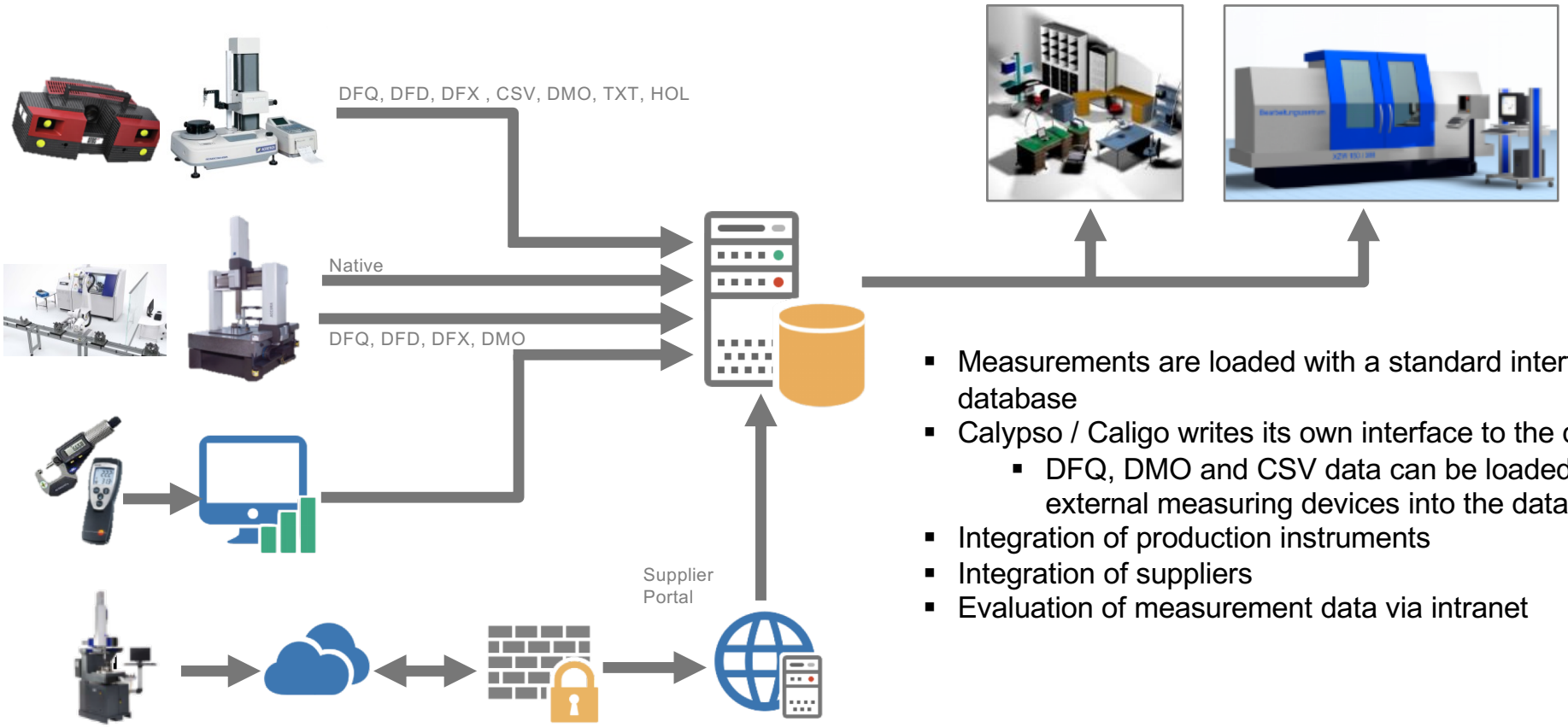
- Quality Database
- Supported Servers (SQL,Oracle,DB2)

PiWeb consists of basic modules for both the integration of other data sources that are open source so they can easily be integrated into existing system environments.

Structure

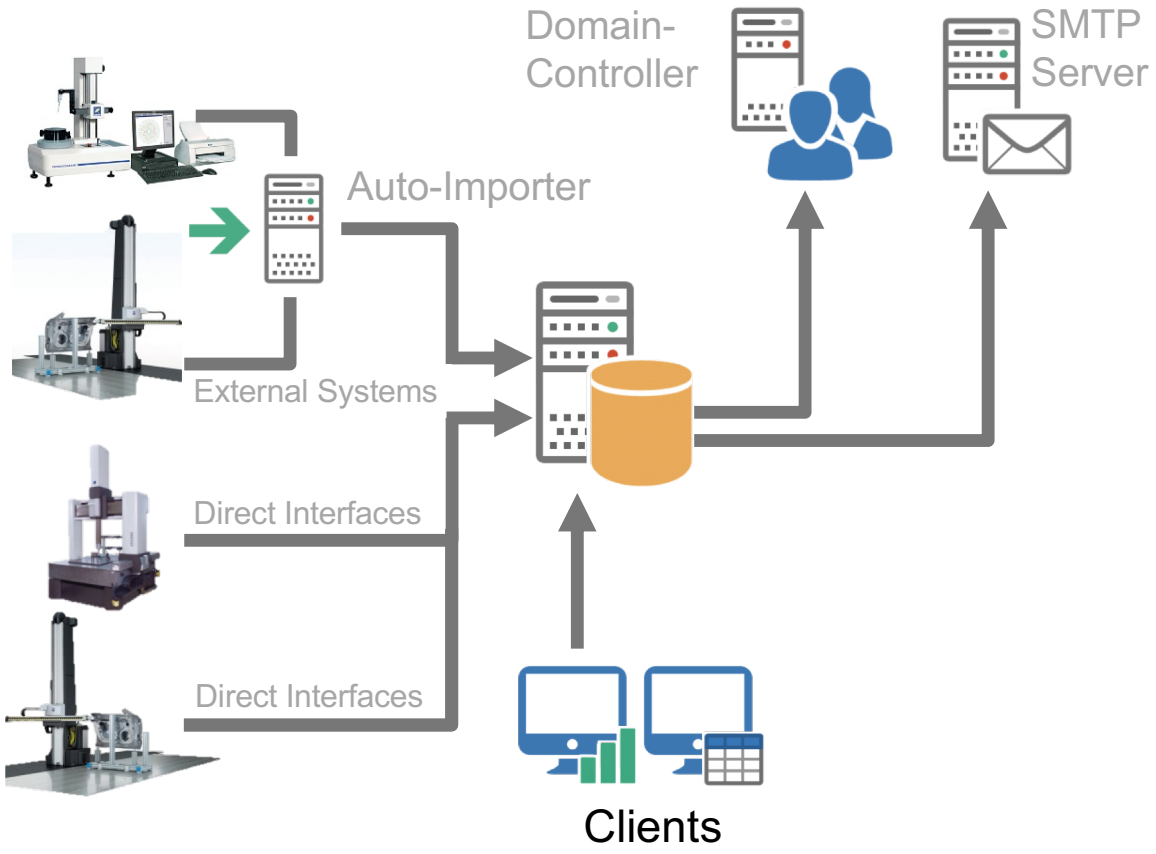

Server
Offene
Interfaces
PiWeb-Infrastructure
•Native Code
•Memory Efficient
•Performance
•C# Code
•Drivers for
Databases
CAD
Statistics
Database
Reporting
Webservice
•C# Code
•WPF
•C# Code
•Infrastructure IIS
64-Bit Capable, Security, PKI-Connection etc.
Clients
Usability

Functionality



- Measurements are loaded with a standard interface to the database
- Calypso / Caligo writes its own interface to the database
  - DFQ, DMO and CSV data can be loaded from external measuring devices into the database
- Integration of production instruments
- Integration of suppliers
- Evaluation of measurement data via intranet

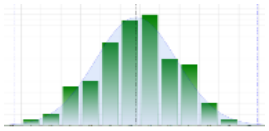
New Server Platform



- Integration of Active Directory
- Connection to Mail System
- Central Management of Auto-Importer System
- Central Health-Monitoring
- Data Processing on Server
  - Flexible Job Platform
  - Customized and Expandable
  - Policies for Data Management
- Email Alerts

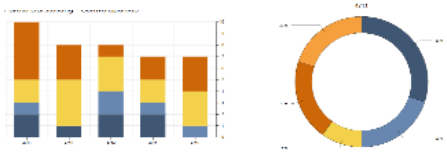
Data Types

Scaler Characteristics



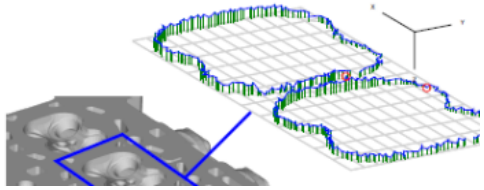
- Analog to QDAS
- Statistical Functions
- Control Charts
- Dependencies
- Post Analysis:
  - Separation
  - Grouping

Attributive and Attributive Scoring Features



- User Defined Catalogs
- Clasification Functions for Scalar Quantites
- Pareto Analysis
- Breakdown by Group
- Summation of Errors, such as Core Breaks – Cylinder Region 1

Binary Data



- Formplots, Pictures, CAD-Data
- Embedded Documentation
- 3D-Data Visulizulation
- Easily Extenable
  - E.g. Audit Tables
  - Serialized Curves

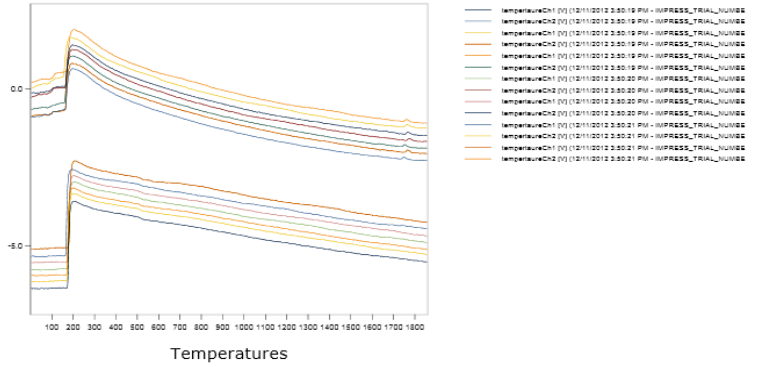
Curves and Gradients as a Feature

Raw Data Storage During Measurement or Production

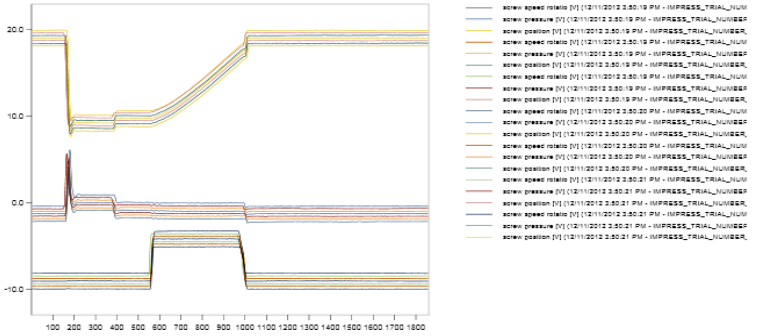
- Temperature
- Torque curves, profile scans u.v.m.

Benefit

- Visual represenation
- Evaluation against curves at the feature level
- Evaluation according to characteristic calcuations
- Correlation of production and measured values for teaching process control variables



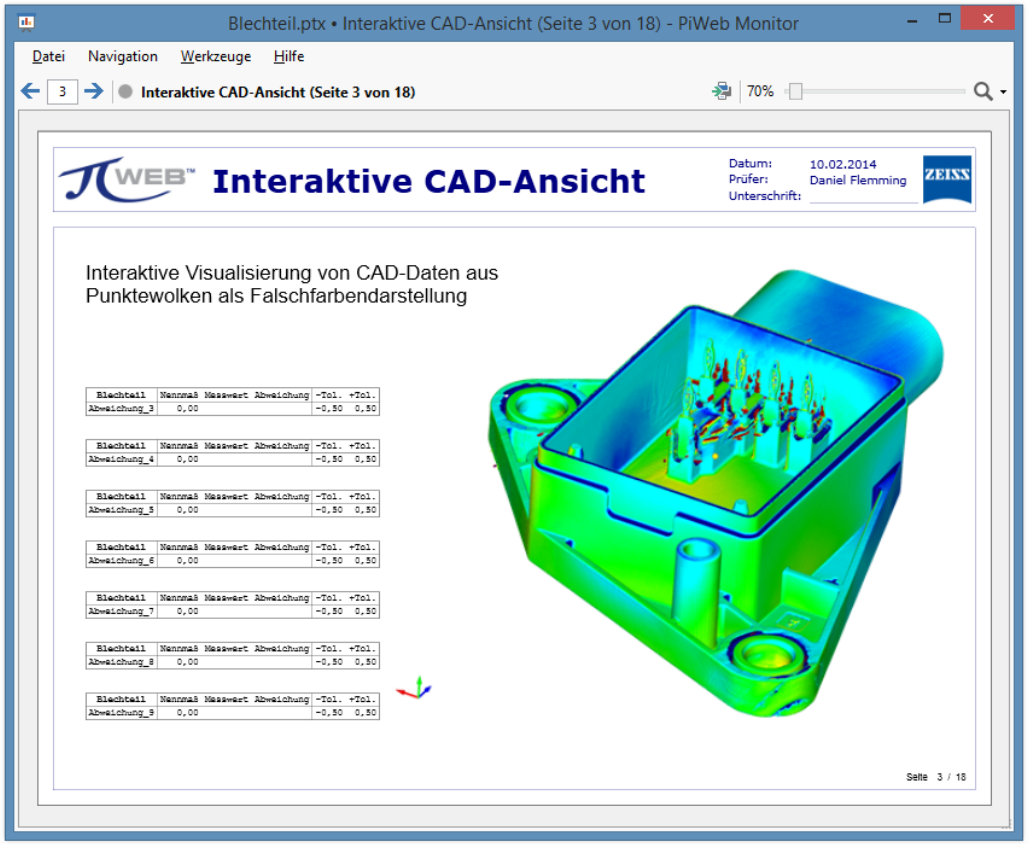
Temperatures



Screw

Integration of Point Clouds

- Workshop with GOM
- Result: CAD-based data visualization in PiWeb (point clouds)
- Presentation interactive, not static 2D graphics!
- Open data format



Interfaces

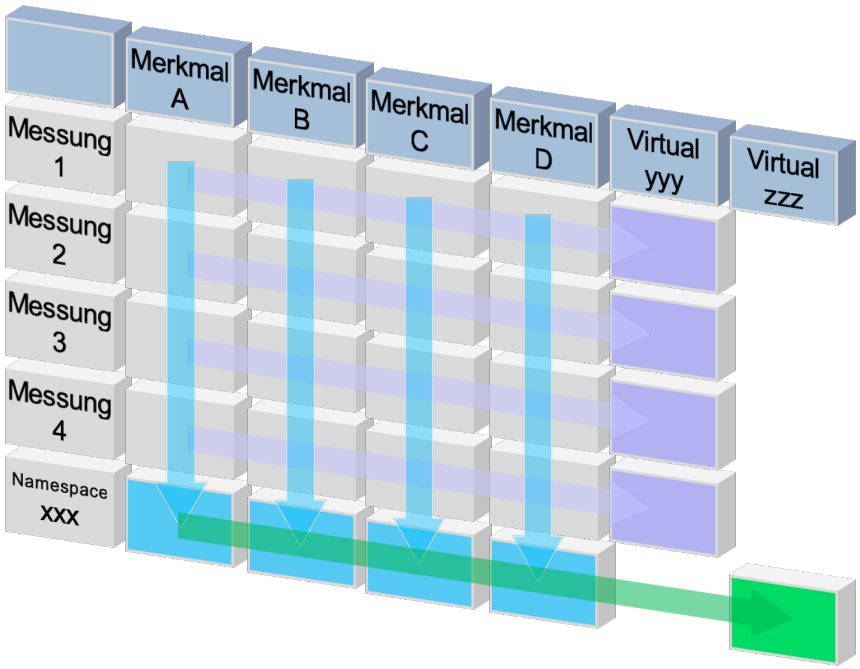
Interface HTTP-based (SOAP, REST)
- No proprietary interfaces
- No direct access to database!

Used by Third Parties
- Customer specific tools

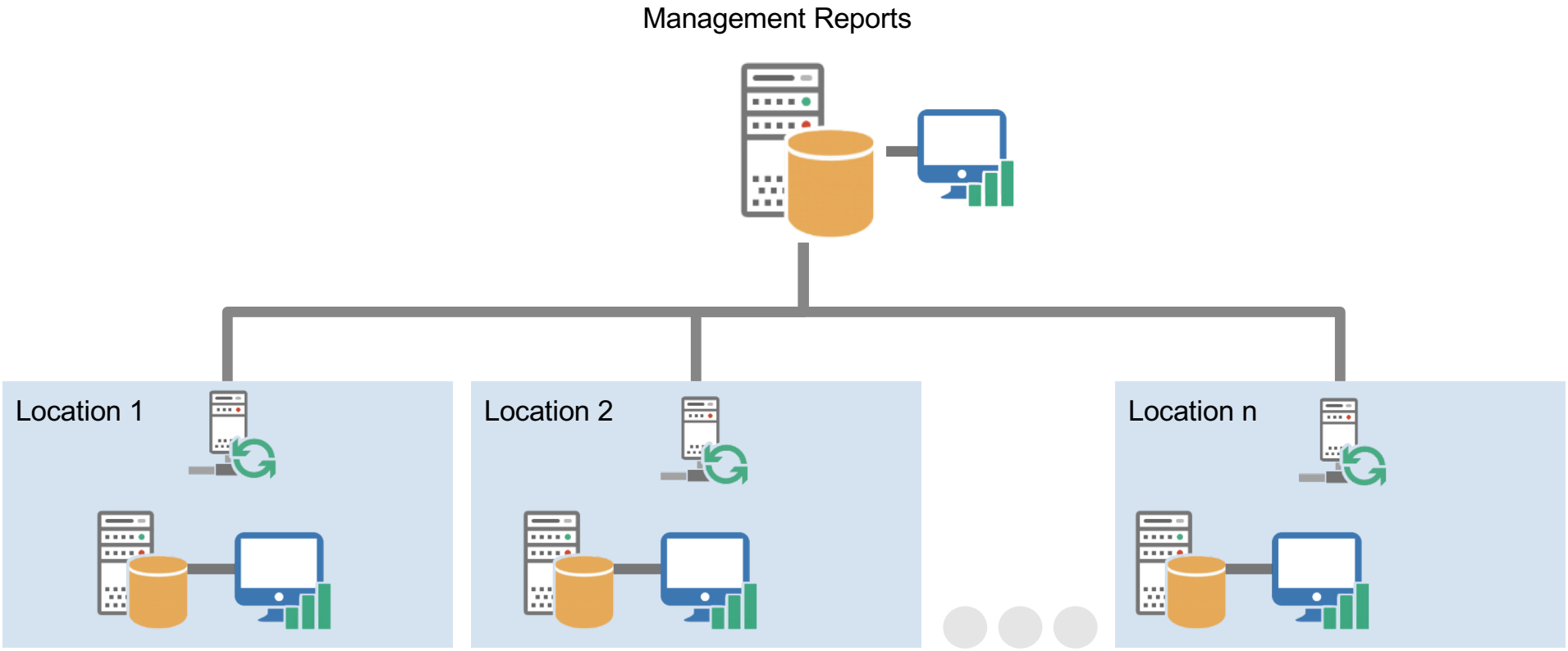
Publication Based as an Open Source Solution

Data Compression on Server (planned)

- Compression for each characteristic over time / unit or per measurement possible
- Possible for extremely large amounts of aggregate measurements
- Calculation from job engine on the server
- Easily customized

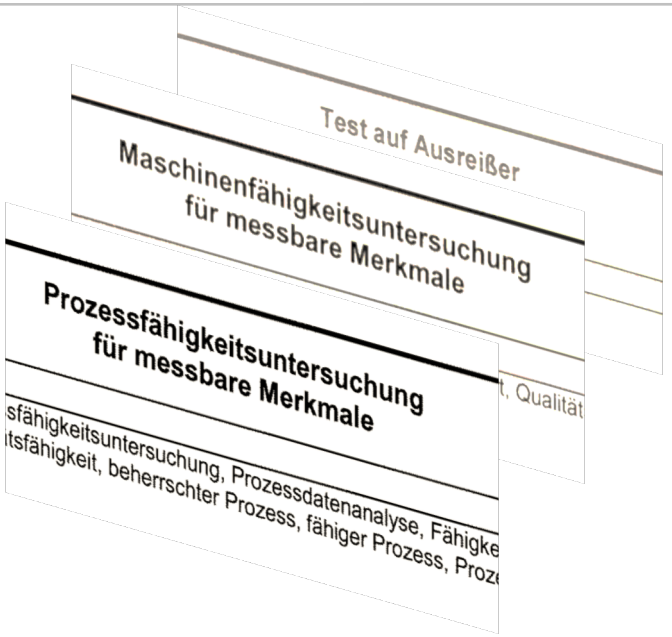


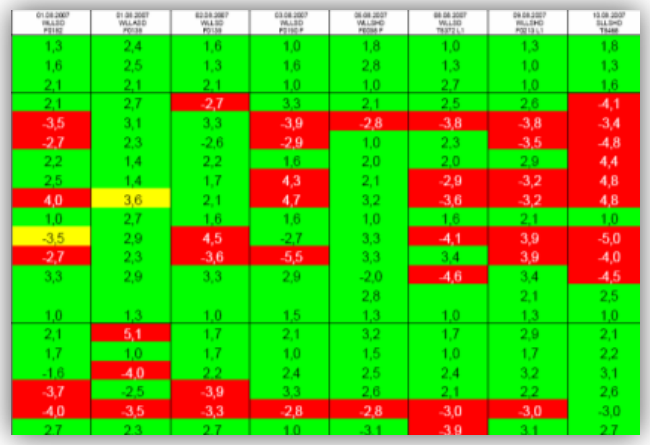
Concept
Multiple Databases



Complex Statistics

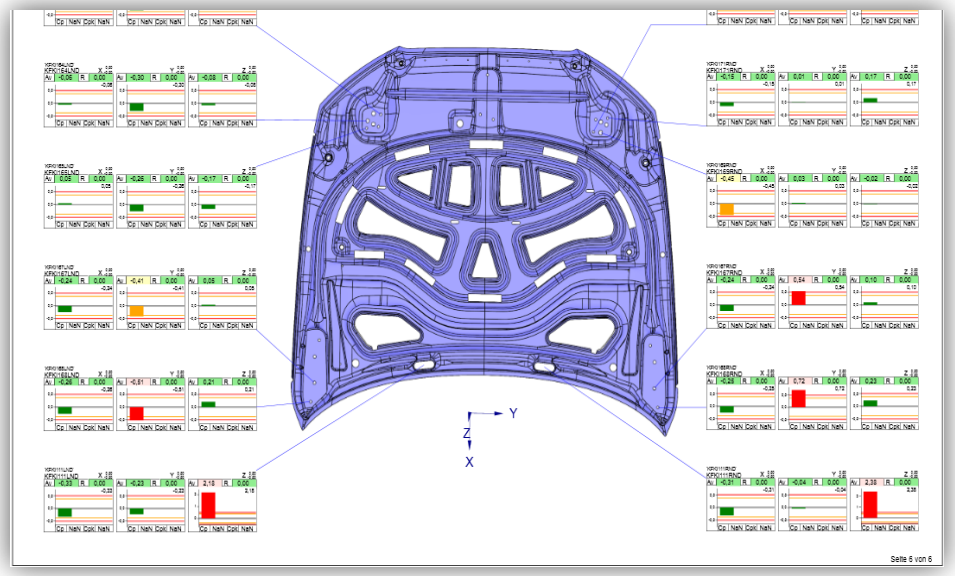
- Statistics Implementation
  - Distributions, outlier recoginition, calculation ability etc.
  - Statistical tests for process variation, plant and distribution models
  - Validated against QS-Stat, Mathematica und R

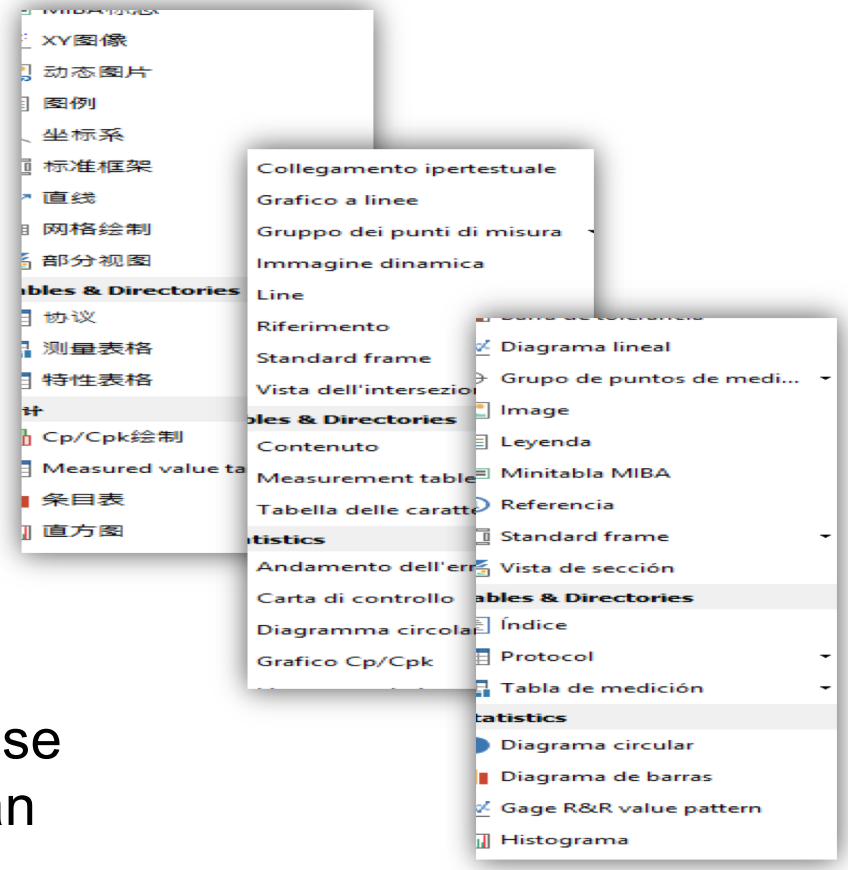




- Sampling
- Statistical Tests
- Result Distributions
- Capability Indicies
- Process and Machine Evaluation

More Default Languages



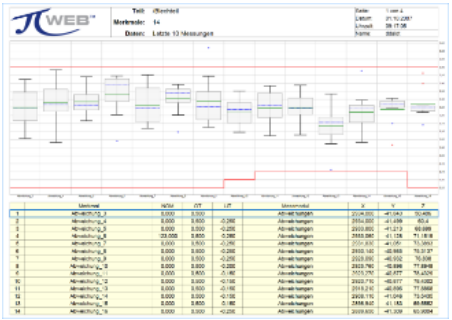


- German
- English
- Spanish
- French
- Chinese
- Korean

Statistical Charts (examples)

Run Charts

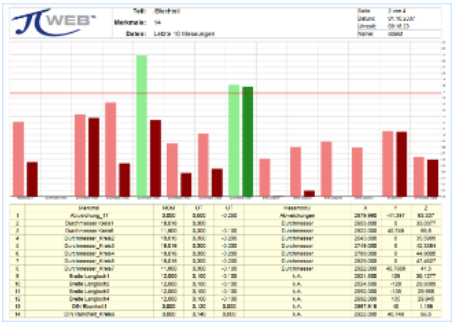
Box Plot



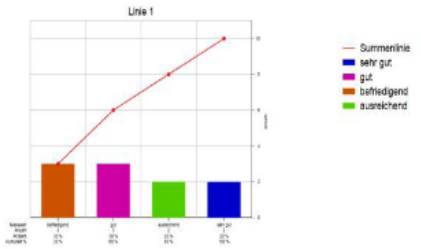
Histogram

Control Charts

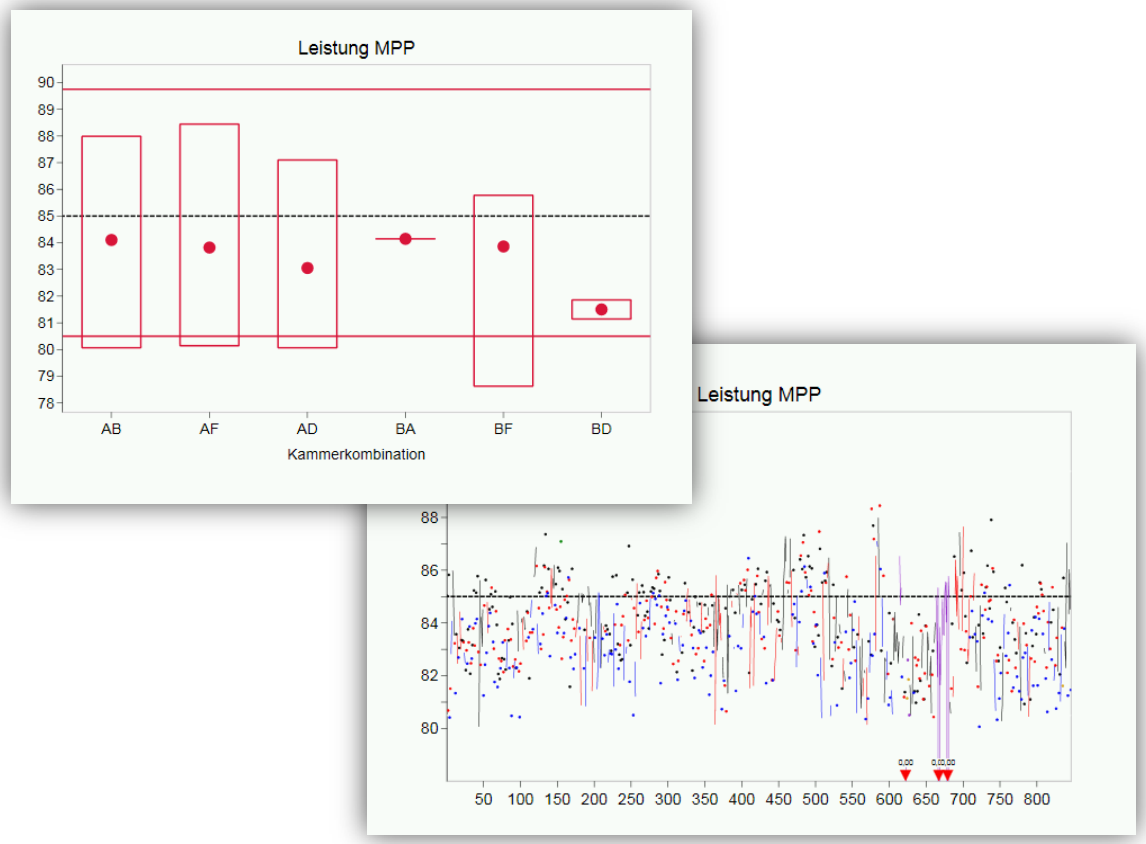
Cp/Cpk-Analysis



Pareto Analysis



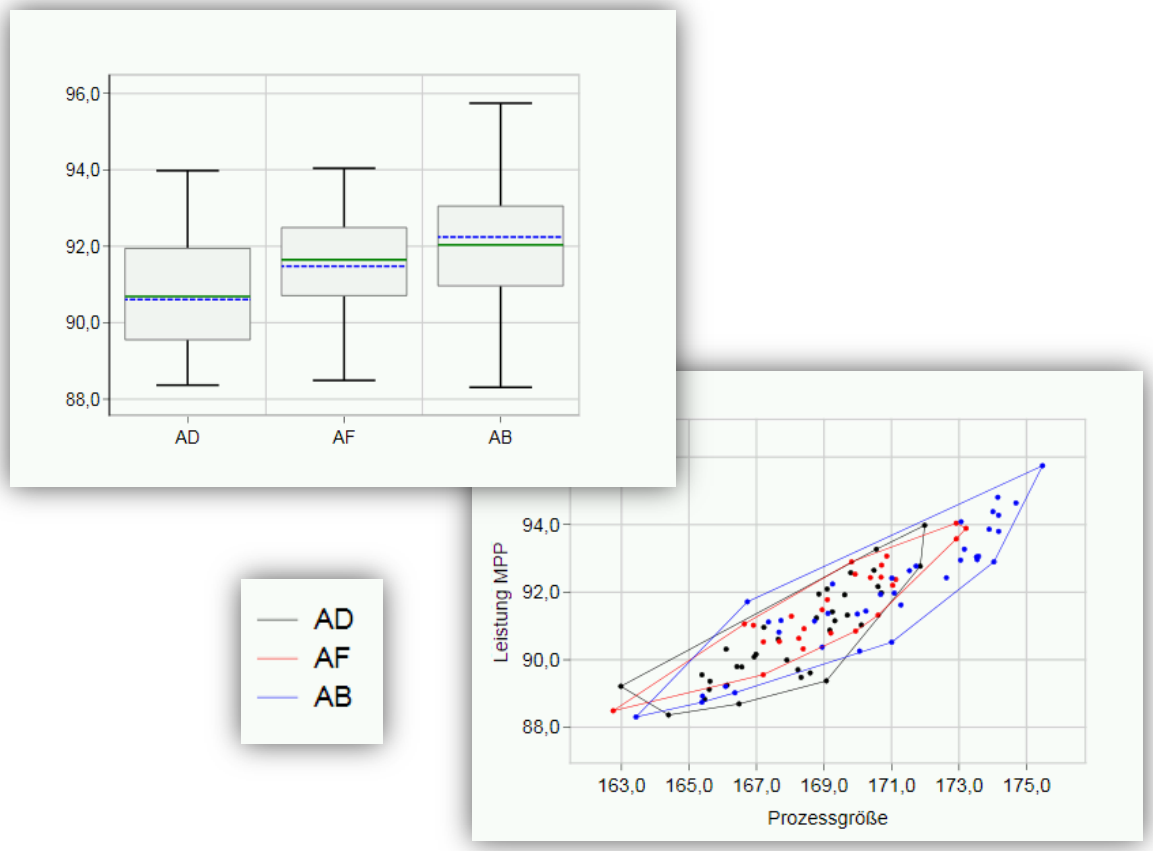
Analysis Tools (I)



Dependency and size of Influences

Grouping and separating according to parameters and filters

Analysis Tools (II)



Dependency analysis

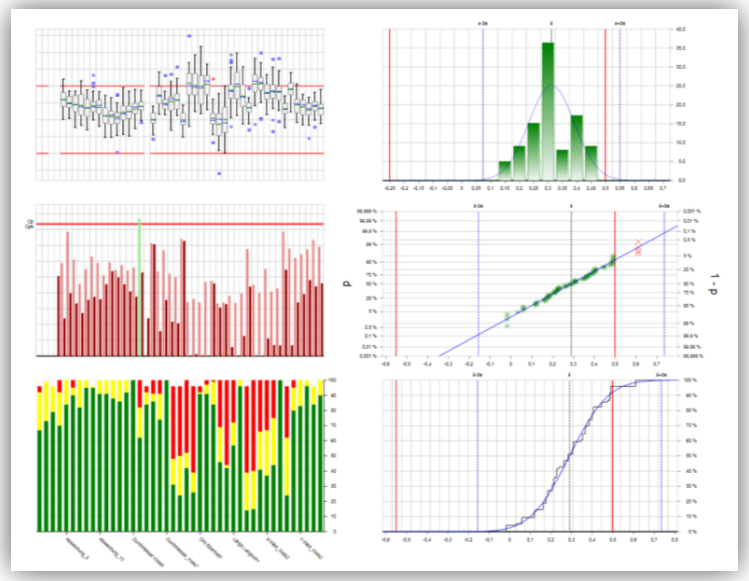
Box plot

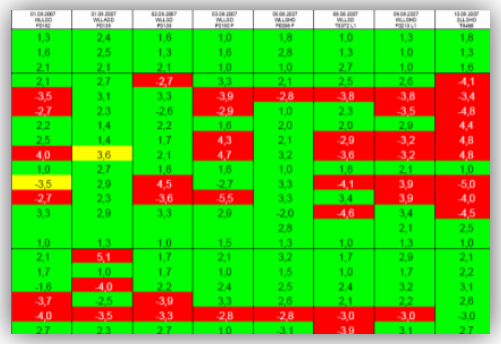
xy – plot

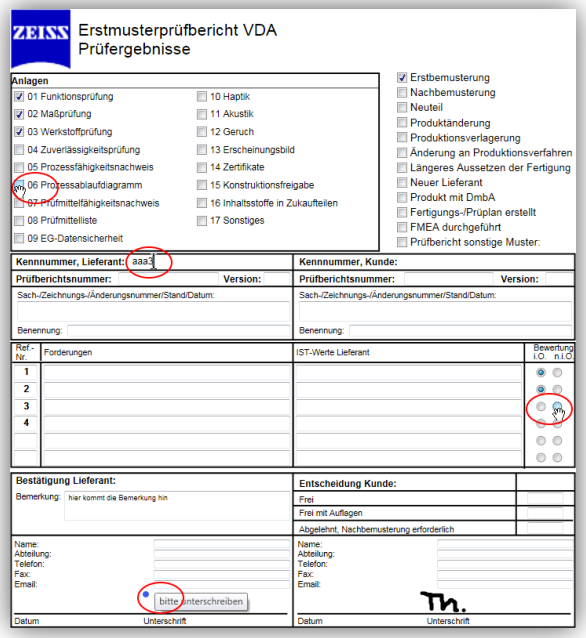
Correlation

Variation analysis

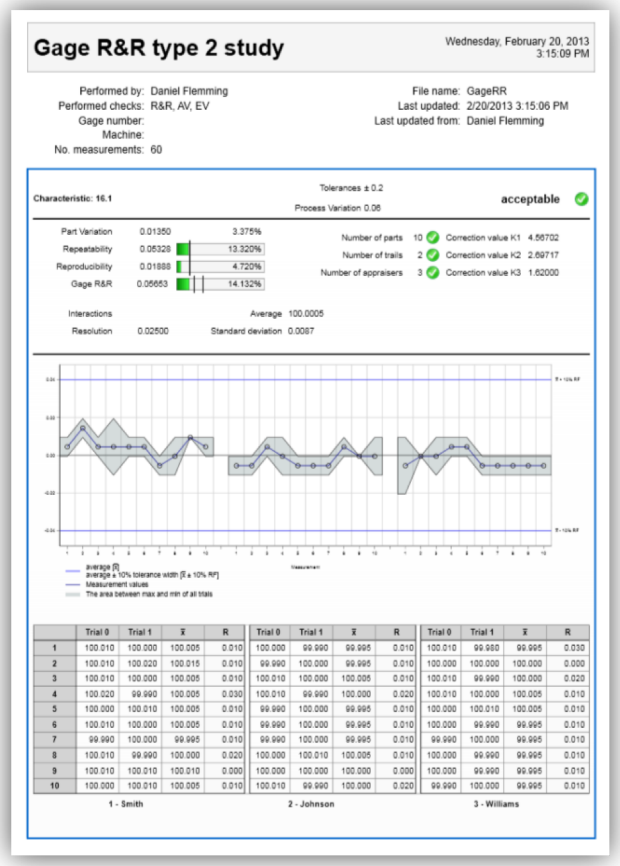
Examples

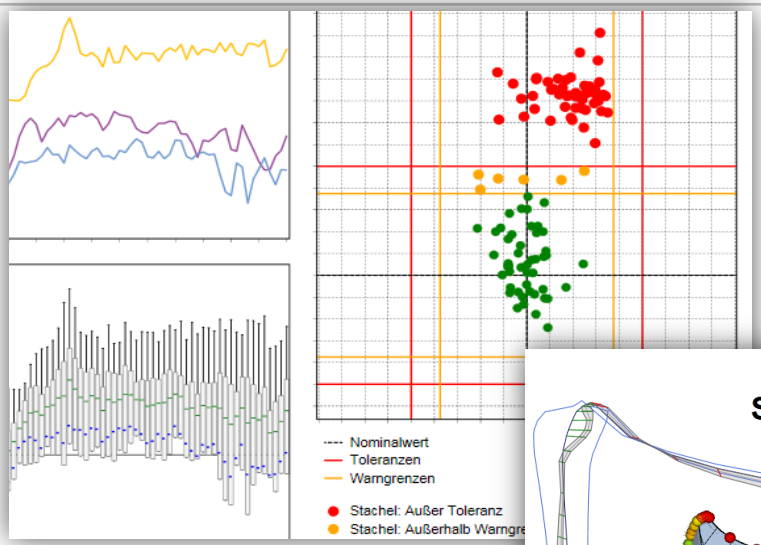


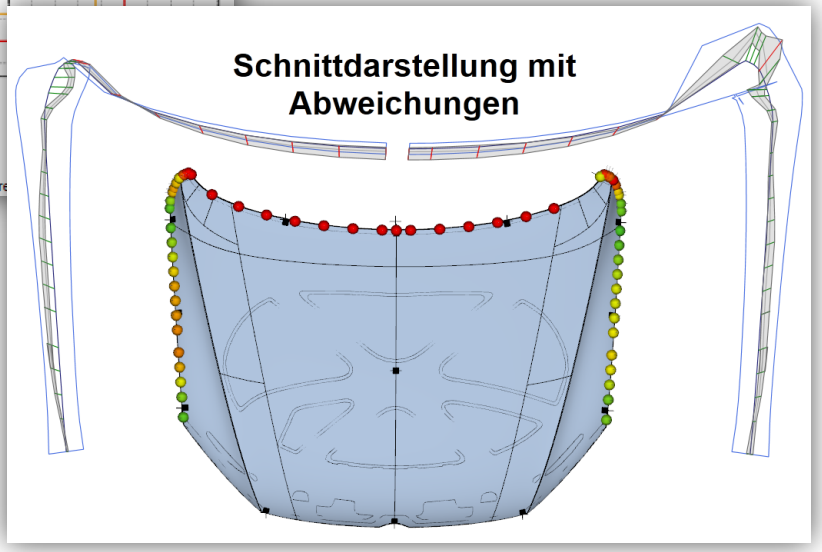



ZEISS
Erstmusterprüfbericht VDA
Prüfergebnisse
Anlagen
01 Funktionsprüfung
02 Maßprüfung
03 Werkstoffprüfung
04 Zuverlässigkeitsprüfung
05 Prozessfähigkeitsnachweis
06 Prozessablaufdiagramm
07 Prüfmittelfähigkeitsnachweis
08 Prüfmittelliste
09 EG-Datensicherheit
10 Haptik
11 Akustik
12 Geruch
13 Erscheinungsbild
14 Zertifikate
15 Konstruktionsfreigabe
16 Inhaltsstoffe in Zukaufteilen
17 Sonstiges
Erstbemusterung
Nachbemusterung
Neuteil
Produktänderung
Produktionsverlagerung
Änderung an Produktionsverfahren
Längeres Aussetzen der Fertigung
Neuer Lieferant
Produkt mit DmbA
Fertigungs-/Prüplan erstellt
FMEA durchgeführt
Prüfbericht sonstige Muster:
Kennnummer, Lieferant:
aaa3
Kennnummer, Kunde:
Prüfberichtsnummer:
Version:
Sach-/Zeichnungs-/Änderungsnummer/Stand/Datum:
Benennung:
Ref.-Nr.
Forderungen
IST-Werte Lieferant
Bewertung i.O. n.i.O
Bestätigung Lieferant:
Bemerkung:
hier kommt die Bemerkung hin
Entscheidung Kunde:
Frei
Frei mit Auflagen
Abgelehnt, Nachbemusterung erforderlich
Name:
Abteilung:
Telefon:
Fax:
Email:
bitte unterschreiben
Datum
Unterschrift

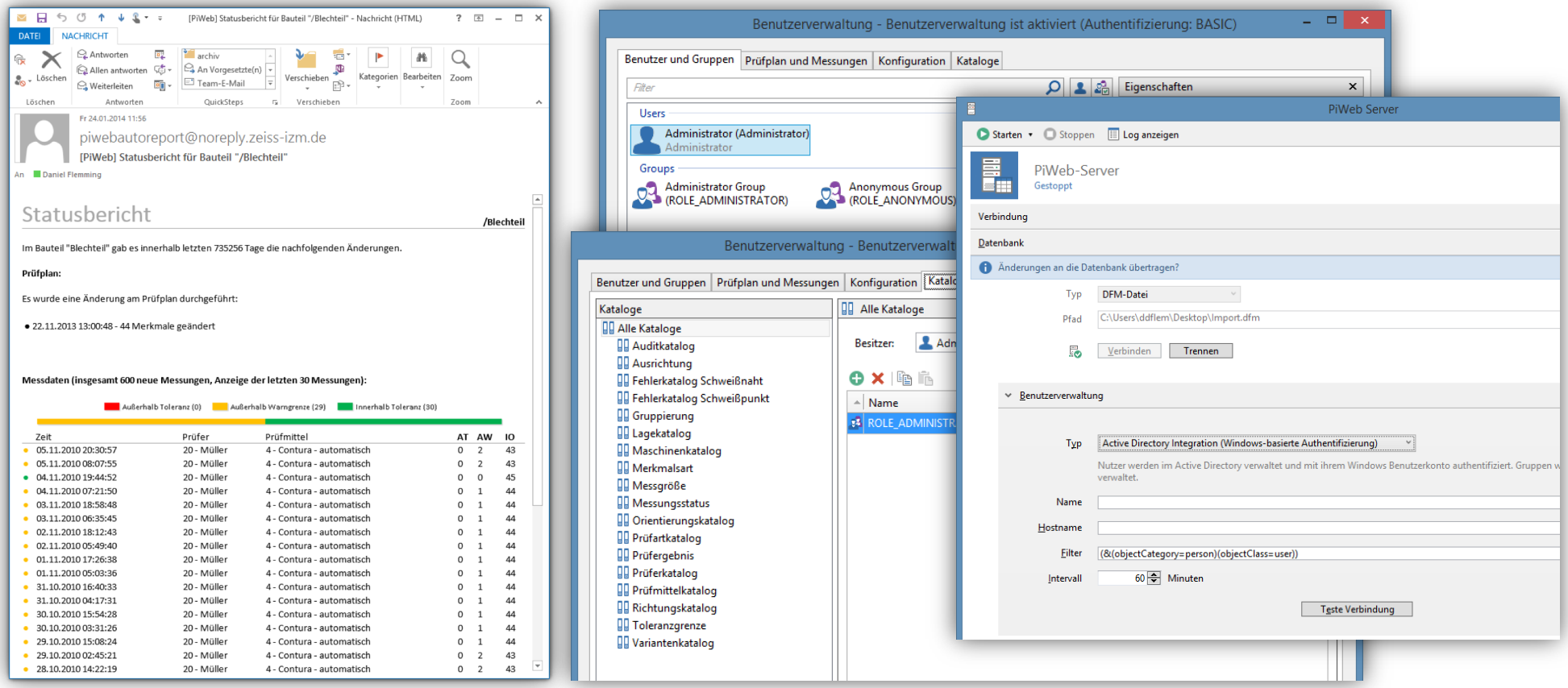
Examples


Gage R&R type 2 study
Wednesday, February 20, 2013 3:15:09 PM
Performed by: Daniel Flemming
Performed checks: R&R, AV, EV
Gage number:
Machine:
No. measurements: 60
File name: GageRR
Last updated: 2/20/2013 3:15:06 PM
Last updated from: Daniel Flemming
Characteristic: 16.1
Tolerances ± 0.2
Process Variation 0.06
acceptable
Part Variation 0.01350 3.375%
Repeatability 0.05328 13.320%
Reproducibility 0.01888 4.720%
Gage R&R 0.05653 14.132%
Number of parts 10 Correction value K1 4.56702
Number of trails 2 Correction value K2 2.69717
Number of appraisers 3 Correction value K3 1.62000
Interactions
Resolution 0.02500
Average 100.0005
Standard deviation 0.0087
1 - Smith
2 - Johnson
3 - Williams


Nominalwert
Toleranzen
Warngrenzen
Stachel: Außer Toleranz
Stachel: Außerhalb Warngre


Schnittdarstellung mit Abweichungen

Examples


[PiWeb] Statusbericht für Bauteil "/Blechteil" - Nachricht (HTML)
piwebautoreport@noreply.zeiss-izm.de
[PiWeb] Statusbericht für Bauteil "/Blechteil"
Statusbericht
/Blechteil
Im Bauteil "Blechteil" gab es innerhalb letzten 735256 Tage die nachfolgenden Änderungen.
Prüfplan:
Es wurde eine Änderung am Prüfplan durchgeführt:
● 22.11.2013 13:00:48 - 44 Merkmale geändert
Messdaten (insgesamt 600 neue Messungen, Anzeige der letzten 30 Messungen):
Außerhalb Toleranz (0)
Außerhalb Warngrenze (29)
Innerhalb Toleranz (30)
Zeit | Prüfer | Prüfmittel | AT | AW | IO
05.11.2010 20:30:57 | 20 - Müller | 4 - Contura - automatisch | 0 | 2 | 43
05.11.2010 08:07:55 | 20 - Müller | 4 - Contura - automatisch | 0 | 2 | 43
04.11.2010 19:44:52 | 20 - Müller | 4 - Contura - automatisch | 0 | 0 | 45
04.11.2010 07:21:50 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
03.11.2010 18:58:48 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
03.11.2010 06:35:45 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
02.11.2010 18:12:43 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
02.11.2010 05:49:40 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
01.11.2010 17:26:38 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
01.11.2010 05:03:36 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
31.10.2010 16:40:33 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
31.10.2010 04:17:31 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
30.10.2010 15:54:28 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
30.10.2010 03:31:26 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
29.10.2010 15:08:24 | 20 - Müller | 4 - Contura - automatisch | 0 | 1 | 44
29.10.2010 02:45:21 | 20 - Müller | 4 - Contura - automatisch | 0 | 2 | 43
28.10.2010 14:22:19 | 20 - Müller | 4 - Contura - automatisch | 0 | 2 | 43
Benutzerverwaltung - Benutzerverwaltung ist aktiviert (Authentifizierung: BASIC)
Benutzer und Gruppen
Prüfplan und Messungen
Konfiguration
Kataloge
Eigenschaften
Users
Administrator (Administrator)
Administrator
Groups
Administrator Group (ROLE_ADMINISTRATOR)
Anonymous Group (ROLE_ANONYMOUS)
Alle Kataloge
Auditkatalog
Ausrichtung
Fehlerkatalog Schweißnaht
Fehlerkatalog Schweißpunkt
Gruppierung
Lagekatalog
Maschinenkatalog
Merkmalsart
Messgröße
Messungsstatus
Orientierungskatalog
Prüfartkatalog
Prüfergebnis
Prüferkatalog
Prüfmittelkatalog
Richtungskatalog
Toleranzgrenze
Variantenkatalog
Besitzer:
Name
ROLE_ADMINISTR
PiWeb Server
Starten
Stoppen
Log anzeigen
PiWeb-Server
Gestoppt
Verbindung
Datenbank
Änderungen an die Datenbank übertragen?
Typ
DFM-Datei
Pfad
C:\Users\ddflem\Desktop\Import.dfm
Verbinden
Trennen
Benutzerverwaltung
Typ
Active Directory Integration (Windows-basierte Authentifizierung)
Nutzer werden im Active Directory verwaltet und mit ihrem Windows Benutzerkonto authentifiziert. Gruppen w
verwaltet.
Name
Hostname
Filter
(&(objectCategory=person)(objectClass=user))
Intervall
60
Minuten
Teste Verbindung

Customers

ZEISS
Audi
novem
valmet automotive
LOCKHEED MARTIN
IWC
INTERNATIONAL WATCH CO. SCHAFFHAUSEN
SWITZERLAND, SINCE 1868
Google
ÖSSUR
EDAG
VALTRA
Individually Yours
+GF+
KUNSTSTOFF SCHWANDEN
GESTAMP
KERN
AGCO
ASHOK LEYLAND
IAC
International Automotive Components
KeiperRecaroGroup
MAHLE
Driven by performance
GRÜNER
Solar Turbines
A Caterpillar Company
SIEMENS
nexteer
AUTOMOTIVE
LUEN FUNG
BOSCH
Johnson Controls
CeramTec

We make it visible.