



# **QDA at KP**

**QUALITY ASSURANCE  
AND  
CUSTOMER REQUIREMENTS**

# Quality Data Analysis



A screenshot of the ASIDATAMYTE website. The header includes the company logo 'ASIDATAMYTE redefining quality' and navigation links for Languages, Global Locations, and Contact Us. Below the header is a navigation menu with links for Home, Solutions, Products, Services, Industries Served, News, Our Customers, Career, Blog, About Us, and Help Desk. A search bar is also present. The main content area features a large circular diagram representing the QDA process, divided into 'PLANNING' and 'PRODUCTION' phases. The 'PLANNING' phase includes modules like I-APQP, PPAP, FMEA, Gage &amp; Tool Management, and Document Management. The 'PRODUCTION' phase includes Supplier Management, DM, SPC &amp; Data Collection, CMM/3D Analysis, Non-Conformance Management, LIMS, and Traceability. A call-to-action button says 'Click an Area of Interest and Receive More Information Below'. A sidebar on the left lists various products under the 'QDA' category, including DataMetrics, GageMetrics, MPACT, EnGagePlus, 800 Data Collector, LightStar, Gage Interfaces, LaserGauge, and Dimensional Gages. At the bottom, there are social media icons for Twitter, LinkedIn, Facebook, YouTube, and RSS, along with a 'Newsletter' button and a copyright notice for 2013 ASIDATAMYTE.

## QDA

- software for use in quality assurance

At KPK, we focus on our customers. We want to ensure our customers consistent top quality that always meet the customer's specified requirements and specifications.

To ensure these parameters in our current production and NPI-phase (New Product Introduction) we use a variety of QDA modules as

- SPC (Statistical Process Control)
- Control chart
- Control instructions

The use of these QDA modules ensures, that we always know the status of the products we currently produce.

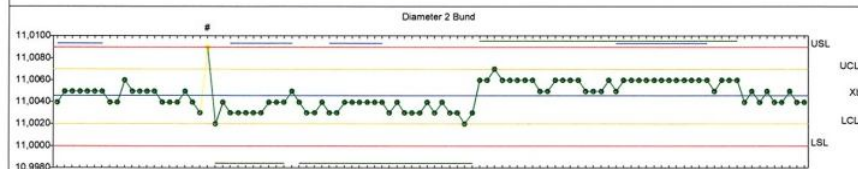
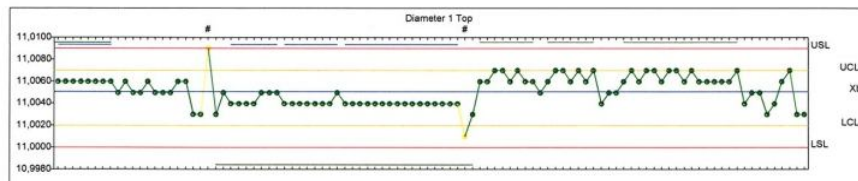
# Statistic Process Control



KP Komponenter A/S  
Birkevej 2  
DK 6971 Spjald

16-09-2013  
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Ø11 Diameter - Celle 9				Sample results: 17-08-2013 - 16-09-2013				
	Nominal	USL	LSL	Number	Xb	S	Cp	Cpk
Diameter 1 Top	11,0000	11,0090	11,0000	316	11,00507	0,0012391	1,9543285	1,7083195
Diameter 2 Bund	11,0000	11,0090	11,0000	316	11,00460	0,0010352	2,2078598	2,1566225



Diameter 1 Top							Diameter 2 Bund						
No.	LCL	UCL	f	Σf	Σf%	Histogram	No.	LCL	UCL	f	Σf	Σf%	Histogram
20	11,01400	11,01500					20	11,01400	11,01500				
19	11,01300	11,01400					19	11,01300	11,01400				
18	11,01200	11,01300					18	11,01200	11,01300				
17	11,01100	11,01200					17	11,01100	11,01200				
16	11,01000	11,01100					16	11,01000	11,01100				
15	11,00900	11,01000					15	11,00900	11,01000				
14	11,00800	11,00900	1	316	100,00		14	11,00800	11,00900	1	316	100,00	
13	11,00700	11,00800	0	315	99,68		13	11,00700	11,00800	0	315	99,68	
12	11,00600	11,00700	33	315	99,68		12	11,00600	11,00700	2	315	99,68	
11	11,00500	11,00600	94	282	89,24		11	11,00500	11,00600	60	313	99,05	
10	11,00400	11,00500	85	188	59,49		10	11,00400	11,00500	107	253	80,06	
9	11,00300	11,00400	72	103	32,59		9	11,00300	11,00400	107	146	46,20	
8	11,00200	11,00300	23	31	9,81		8	11,00200	11,00300	31	39	12,34	
7	11,00100	11,00200	7	8	2,53		7	11,00100	11,00200	8	8	2,53	
6	11,00000	11,00100	1	1	0,32		6	11,00000	11,00100				
5	10,99900	11,00000					5	10,99900	11,00000				
4	10,99800	10,99900					4	10,99800	10,99900				
3	10,99700	10,99800					3	10,99700	10,99800				
2	10,99600	10,99700					2	10,99600	10,99700				
1	10,99500	10,99600					1	10,99500	10,99600				

This graph shows an example of data enrolled in QDA SPC database.

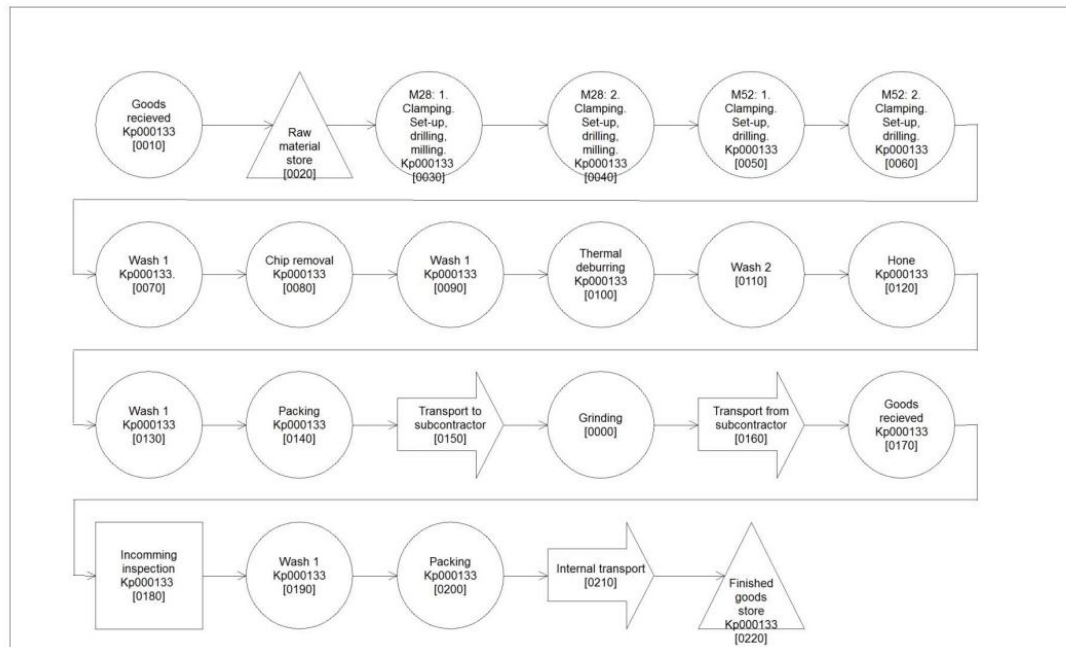
It is evident that the process is ongoing and is produced with a Cpk on the positive side of 1.33, which is the minimum requirement ( $\geq 1,33$ ).

The system is online and follows the processes 24/7.

# Flow chart



	<b>KP KOMPONENTER</b>	
Created by: Poul Erik Kamstrup Creation date: 26-08-2013 11:10:16 Part: DN11137827	<b>Proces Flow Diagram</b> - 11137827 OSPE-	Page 1 Print date.09-09-2013



The above flow chart shows the individual process steps, which function the steps have and on which there are tests, checks and inspections.

# Control chart



[ ] Prototype [ ] Pre-Launch [X] Production										
Control Plan Number <b>155L6620</b>			Key Contact/Phone			Date (Orig.) <b>02-10-2008</b>		Date (Rev.) <b>21-08-2013</b>		
Part Number/Latest Change Level <b>DN11103457</b> 3 vom 21-08-2013			Draw up by <b>Kaj</b>			Customer Engineering Approval/Date (if Req'd.)				
Part Name/Description <b>PVB 32</b>			Supplier/Plant Approval/Date			Customer Quality Approval/Date (if Req'd.)				
Supplier/Plant <b>danía</b>		Supplier Code		Approved by <b>Henning Christiansen</b>		Approval Date <b>02-10-2008</b>		Other Approval/Date (if Req'd.)		
PART/ PROCESS NUMBER	PROCESS NAME/ OPERATION DESCRIPTION	MACHINE, DEVICE, JIG, TOOLS, FOR MFG.	CHARACTERISTICS			SPECIAL CHAR. CLASS	METHODS			
			NO.	PRODUCT	Description		PRODUCT/PROCESS SPECIFICATION/ TOLERANCE	EVALUATION/TECHNIQUE/ MEASUREMENT	SAMPLE	
							SIZE	FREQ		
0030	155L6543_Flade 100,200,300 & 400		4	Flade 400 Ruhed 1	Ra 3,2	ok/ikke ok	Ruhedsmåler	2	Skift	
0040	155L6543_Flade 200		1	Frispor Dybde	0,025 ± 0,015	ok/ikke ok	Ur med bro	2	Skift	
0040	155L6543_Flade 200		2	Frispor Bredde	50 ± 1	ok/ikke ok	Skydelære	2	Skift	
0040	155L6543_Flade 200		29	Kantnorm	-0,3	ok/ikke ok	Visuel	2	Skift	
0040	155L6543_Flade 200		3	Hul 4 Dybde	4 ± 0,5	ok/ikke ok	Skydelære	2	Skift	
0040	155L6543_Flade 200		4	Hul 4 Diameter 1	Ø10,4 ± 0,2	ok/ikke ok	Glat dom	2	Skift	
0040	155L6543_Flade 200		17	Hul 5 Dybde 1	15,5 max	ok/ikke ok	Glat dom	2	Skift	
0040	155L6543_Flade 200		28	Hul 6 Diameter 1	Ø8,5 ± 0,1	ok/ikke ok	Glat dom	2	Skift	
0040	155L6543_Flade 200		20	Hul 25,26 Diameter 2	Ø4 ± 0,1	ok/ikke ok	Glat dom	2	Skift	
0040	155L6543_Flade 200		30	Hul 7 Diameter 1	Ø10,4 ± 0,1	ok/ikke ok	Glat dom	2	Skift	
0040	155L6543_Flade 200		22	Hul 7 Dybde	15,5 max.	ok/ikke ok	Skydelære	2	Skift	
0040	155L6543_Flade 200		27	Hul 1 Diameter 1	13 ± 0,1	ok/ikke ok	Glat dom	2	Skift	
0040	155L6543_Flade 200		24	Hul 1	Måles efter standard	ok/ikke ok		2	Skift	
0040	155L6543_Flade 200		25	Hul 43	Måles efter standard	ok/ikke ok		2	Skift	
0040	155L6543_Flade 200		26	Hul 26	Måles efter standard	ok/ikke ok		2	Skift	
0041	11064852		1	Diameter 1	Ø20,6 ± 0,15	ok/ikke ok	Glat dom	2	Skift	
0041	11064852		2	Dybde 1	2,125 ± 0,055	Key ok/ikke ok	Ur med bro	2	Skift	
0041	11064852		3	Ruhed 1	Ra3,2 Rz16 (Ingen ridser/vibrationer)	ok/ikke ok	Visuel	2	Skift	
0042	11067595		2	Ruhed 1	Ra3,2 (Fri for rivninger og vibrationer)	ok/ikke ok	Visuel	2	Skift	
0042	11067595		1	Diameter 1	Ø14,8 ± 0,1	ok/ikke ok	Glat dom	2	Skift	
0042	11067595		3	Dybde 1	2,125 ± 0,055	ok/ikke ok	Ur med bro	2	Skift	

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This is an example of a control chart which shows

- which part of the work piece to be inspected
- what to be checked
- where there are critical measurements
- which measuring tool to be used
- the number of measurements
- how often.