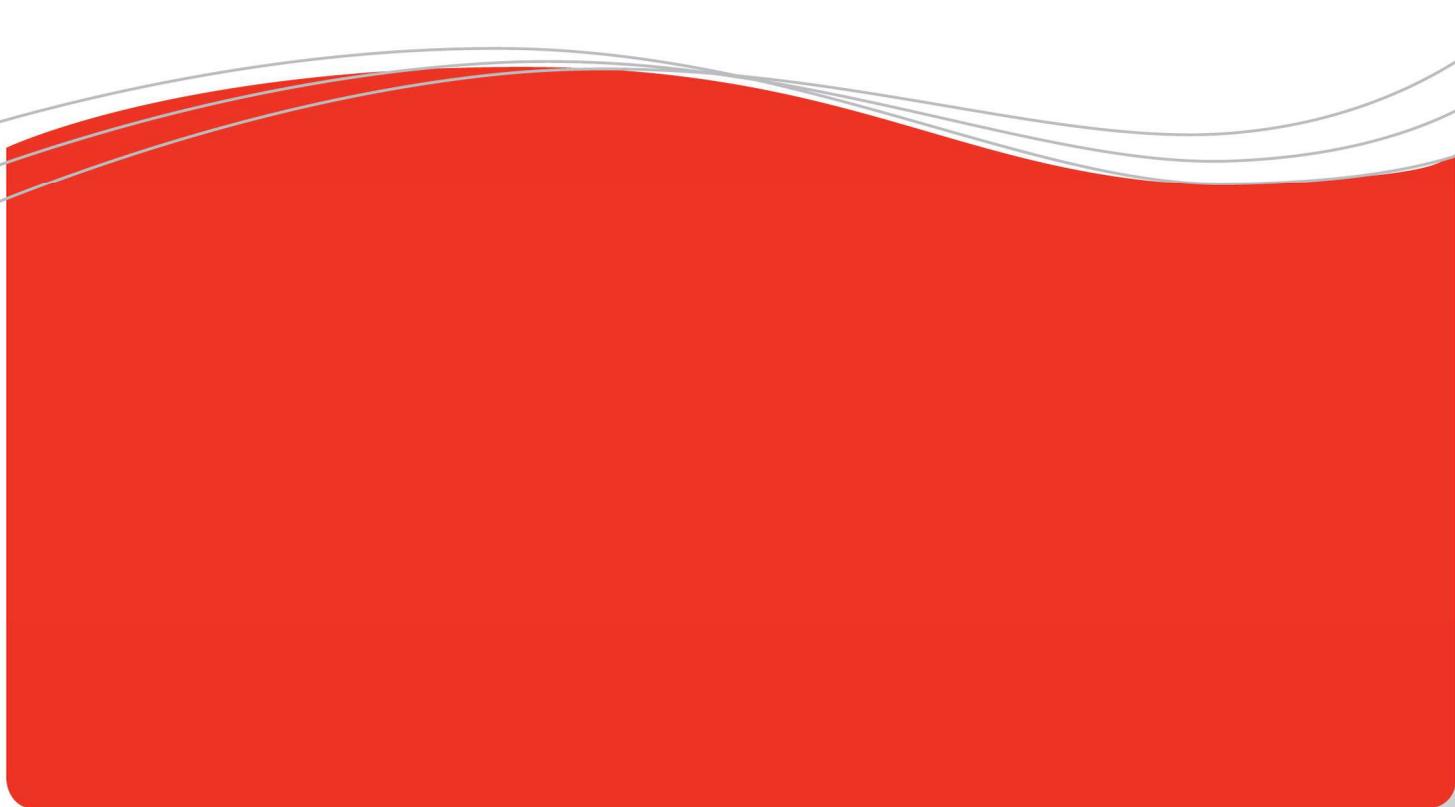# CMM Control Chart creation and Data Acquisition

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CMM Control chart creation and data acquisition

Introduction

A lot of companies applying SPC on the shop floor also make use of CMM to take precise measurements.

Data taken from the CMM are used in different ways:

- First Article Inspection
- Setup verification
- Production control
- Customer certificates
- etc

To use CMM data efficiently the data should be integrated in the central SPC database.
This means the moment the data is available it should be automatically imported and should be available for all employees.

Data acquisition

All CMMs send the information to a file after the measurement process. These files can be automatically imported into DataLyzer Spectrum and are instantly available.

When importing some business rules are required. For example if a subgroupsize is 4 then the measurements should be taken in a required time interval. If measurements are not taken in a predefined interval we don't have a homogenous subgroup so an exception should be made.

Other business rules are for example if mails should be send in case measurements out of specification, out of controls or even if capability benchmarks are violated

DataLyzer offers an import module which can be used to import data from all kinds of external sources like camera's, PLC, databases, machines but also CMMs.

For each specific format an adaptor is available which processes the specific files so it can be processed by the standard import module.

The import module should not only import the measurement data but also all relevant tracking and tracing information like ordernumber, partnumber, operator etc and this information must be stored together with the measurement data.

Most SPC software programs are able to import data from external files but DataLyzer goes one step further.

Creation of control charts

In machining operations the numbers of product characteristics measured with a CMM can be very large and the number of new products can be very large as well.

Creating all required control charts is taking time which can be avoided because the information is available in the CMM data already. For example in table 1 you see data from the Zeiss Calypso.

planid	partnb	id	type	idsymbol	actual	nominal	uppertol	lowertol	deviation
12345	54321	Diameter_up	Diameter	diameter	12.68585	12.7	0	-0.02	-0.01415
12345	54321	Diameter_down	Diameter	diameter	12.68866	12.7	0	-0.02	-0.01134
12345	54321	Length	Length	length	24.99883	25	0.01	-0.01	-0.00117

Table 1: Example data Zeiss Calypso

This data can be used by the Zeiss Calypso import adaptor to create the charts automatically when they are not existing yet. This means the user doesn't need to create all the control charts and can immediately start analyzing the data.

This whitepaper is part of a series of whitepapers on FMEA. The whitepapers can be found on: http://www.datalyzer.com/white-papers/