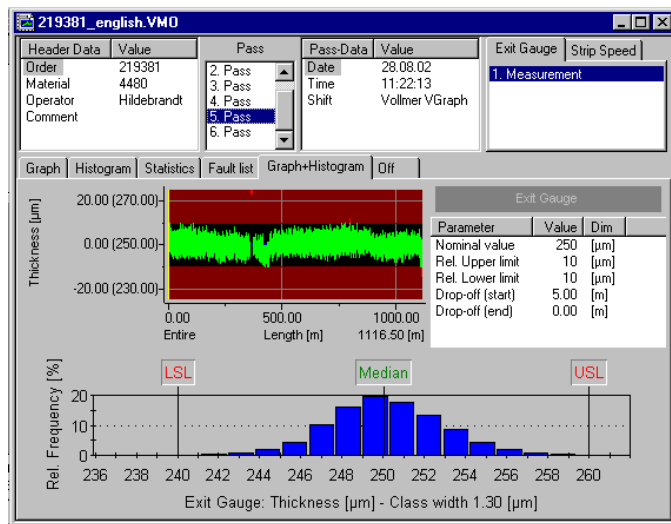


Measurement and Evaluation

VGraph is a universal program for the measurement of continuous values, followed by a statistical evaluation.

Up to 16 of such "measurement tracks" can be measured simultaneously.



Measurement Version (Online) and Viewer (Office) in one

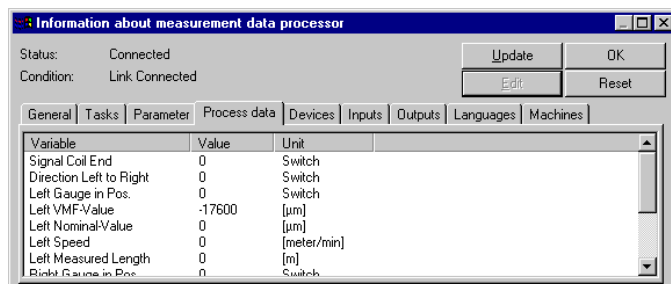
The program for the data measurement is also the program for the review, processing and generation of printouts.

The data of differently configured units are loaded with one and the same program so that the Office workplace has access to the documents of all units via a single program.

Flexible by Independent Measurement Core

The actual data are measured via an integrated software interface by which various hardware configurations and very specific measurement value detection strategies can be realized.

Even unusual requirements by the customer can be realized quickly and easily, even where standard systems fail.



Data Measurement for Highest Demands

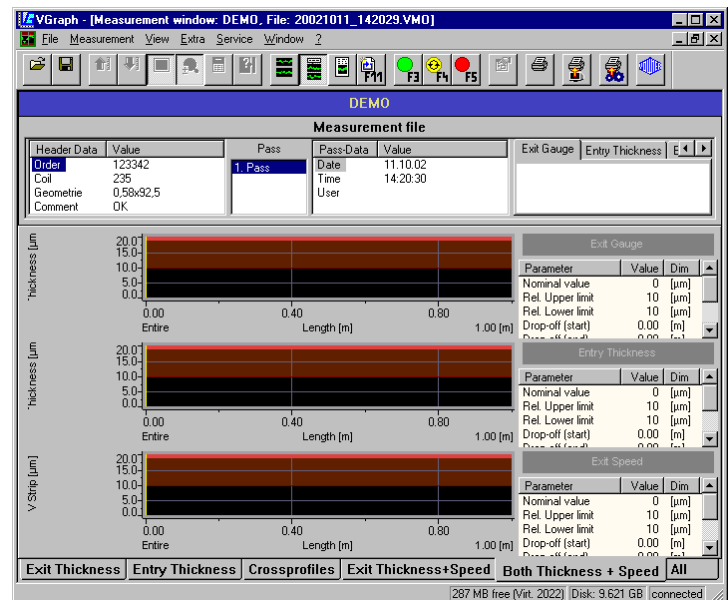
The usefulness of measurement data is only as good as the type of data measurement. The values with a continuous thickness measurement are, for example, **not** only measured in dependence of time (as with many other systems) but also in dependence of the length. VGraph maintains an adjustable measurement point distance, even under Windows, in a real-time raster of **ONE** millisecond (or less, if necessary).

The optional FFT analysis calculates wave lengths directly, not only frequencies.

As a standard, the signals are detected by simple PC plug boards but any bus systems (interbus, profibus etc.) can also be applied.

Measurement Window

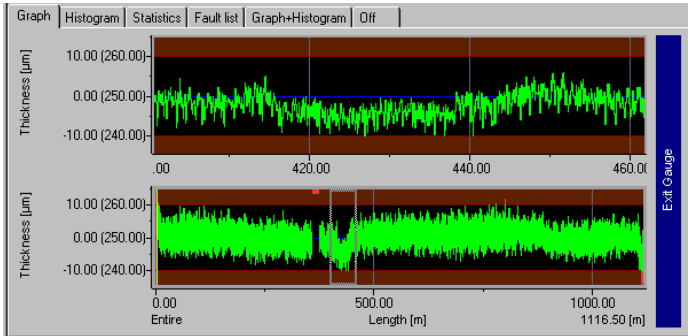
The measurement window shows the current measurements as a dynamic graph. Which graphs are to be indicated together, can be preset as required. Additional data (header data) of a measurement can also be configured and automated per the respective requirements.



The measurement values enter the respective ranges uniformly during the measurement. The display ranges can freely be scaled.

Measurement Graph with Magnifier Function

Generally, the graphical display of a measurement track consists of a total view, an adjustable partial view (magnifier) and the presently set measurement parameters (nominal values, tolerances etc.). What is to be indicated, is determined by you (in the graph below only the total view and magnifier, for example).



The current graph section of the partial view is marked by a frame in the total view that can be shifted at random.

The proper numerical value to each single graphical value can be retrieved at any time.

Statistics

Extensive statistical evaluations for each measurement track will be provided by VGraph. Initial and final ranges can very easily be excluded from the evaluation. Any ranges in between can also be faded out.

The C_p and C_{pk} value that is independent of the distribution is alternatively calculated under the

assumption of a Gaussian distribution or by sorting all values.

Graph	Histogram	Statistics	Fault list	Graph+Histo
Statistics size		Value	Dim...	
Nominal Value		250.00	[µm]	
Lower specification limit		240.00	[µm]	
Upper specification limit		260.00	[µm]	
Measurement length		1116.50	[m]	
Evaluation start		5.00	[m]	
Evaluation end		1116.50	[m]	
Evaluation length		1111.50	[m]	
Distance between measurement points		0.05	[m]	
Number of values		22331		
Valid values		21899		
Maximum value		261.99	[µm]	
Position max. value		800.00	[m]	
Minimum value		235.91	[µm]	
Position min. Value		1112.20	[m]	
average value		250.08	[µm]	
Median		250.01	[µm]	
Variance		7.60	[µm]	
Standard deviation		2.76	[µm]	
Amplitude		26.08	[µm]	
Cp (Normal distribution)		1.21		
Cpk (Normal distribution)		1.20		
Cp (regardless of distribution type)		1.07		
Cpk (regardless of distribution type)		1.02		

A distribution histogram is made, also an error list showing a list of the ranges outside the tolerance field.

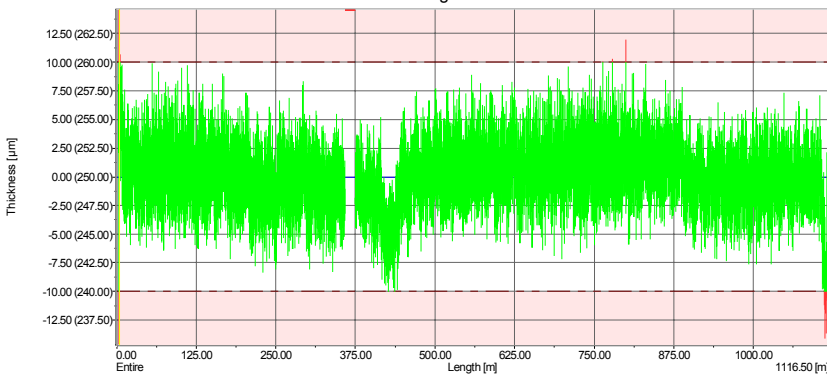
Printouts

Adaptable printouts of the displays can be made, giving a survey about the product as a QS protocol or an internal documentation right away.

Name Address

Order	219381	Material	4480	Operator	Hildebrandt
Pass	5	Exit Gauge	1. Measurement	Date	28.08.02
Time	11:22:13	Shift	Vollmer VGraph		
Measurement length	1116.50 [m]	Nominal Value	250.00 [µm]	Minimum value	235.91 [µm]
Evaluation start	5.00 [m]	Lower specification limit	240.00 [µm]	Maximum value	261.99 [µm]
Evaluation end	1116.50 [m]	Upper specification limit	260.00 [µm]	Median	250.01 [µm]
Evaluation length	1111.50 [m]	average value	250.08 [µm]	Amplitude	26.08 [µm]
between measurement points	0.05 [m]	Standard deviation	2.76 [µm]	Cp (Normal distribution)	1.21
Number of errors	15	Cp (regardless of distribution type)	1.07	Cpk (Normal distribution)	1.20
		Cpk (regardless of distribution type)	1.02		

Exit Gauge



Vollmer Feinmeßgerätebau GmbH

System Conditions

Current PC with Windows operating system.

Current recommendation:

- Pentium 4
- 1GHz processor cycle
- 256MB main store
- 17" TFT monitor
- Quick graphic board
- Color printer
- Windows NT / 2000
- 40 GB hard disk
- CD /CDRW drive
- Network
- 3 spare PCI slots