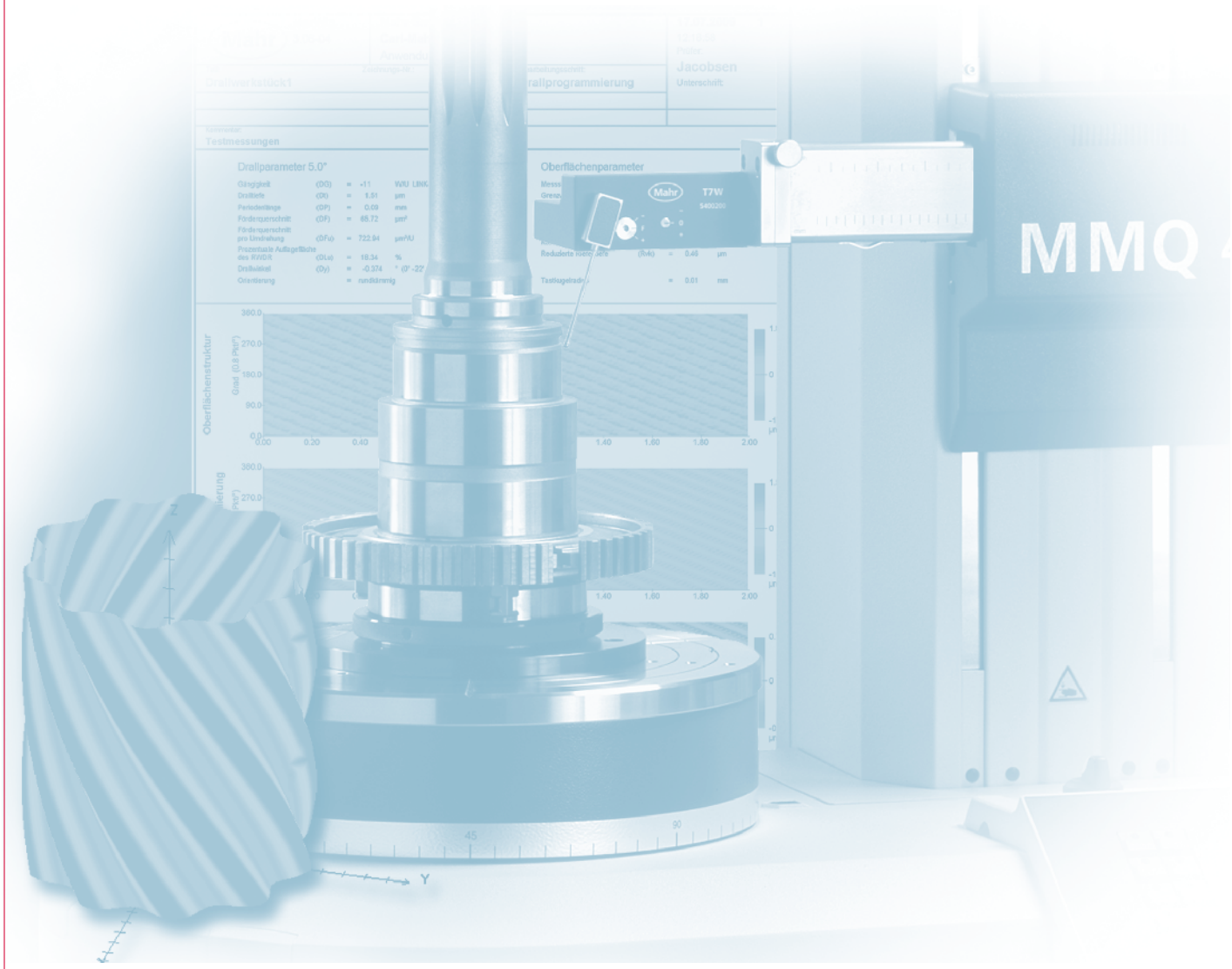
MarForm



MarWin. Lead Testing and Analysis V2

Expansion Package for MarForm Formtester
as per Mercedes Benz Standard MBN31007-7

Mahr

EXACTLY

MarWin. Lead Testing and Analysis with MarForm MMQ 400 Formtester

Description

Measured value acquisition

The surface structure of the seal face of a shaft influences the flow behaviour of the fluid that is to be sealed and therefore greatly influence the sealing function.

A lead structure on the seal face can interfere with the interplay of shaft surface, fluid and sealing lip support creating leakage due to a conveying effect.

Lead is a surface feature appearing over the entire scope on rotation symmetrical surfaces. The evaluation of the macro lead is conducted with the option lead testing as per the Mercedes Benz Standard 31007-7.

Measurement of n generating lines (72 as per MB Standard, MBN 31007-7)

A probe arm for T7W, equipped wtih two styli, is used to record measured values:

- Stylus # 1 with HM ball dia. 3 mm for mechanical centering and tilting of the workpiece on the MMQ 400 Formtester
- Stylus # 2 with diamond stylus tip for measuring lead and form parameters

Scope of application

External measurement on workpiece diameters dia. = 2 - 200 mm

Form and lead evaluation

- Form/positional evaluation/parallelism parallel to lead evaluation
- Form/positional/lead evaluation of several wavelengths

Evaluation and recording

After the measurements have been performed, measurement records with the following content are generated:

Lead parameters (MBN 31007-7):

The following are measured as parameters for lead evaluation:
- Number of threads DG (upr)
- Period length DP (mm)
- Lead angle D_λ (degree)
- Lead direction
- Lead depth Dt (µm)
- Theoretical supply cross-section DF (µm²)
- Theoretical supply cross-section per turn DFu (µm²)
- Contact length

Graphic output

The measured profiles are output in the record as a graphic. Various graphic output types are available:
- 3D-cylinder in color, traditional and unwound
- Display of individual generating lines as a straightness profile for individual assessment of form and position parameters
- Amplitude spectra of the linear profiles in a bar graph

or as per MBN 31007-7: 3D cylinder unwinding, color,
- Surface structure
- Lead surface
- Display of surface profile and lead profile.

MarWin. Lead Measurement Record

Mahr — MarWin 3.06-07	Mahr GmbH Carl-Mahr-Str. 1, Göttingen AWT	10.02.10 3 13:33:48 Inspector: **Jacobsen** Signature:
Part:	Drawing n°:	Machining operation:

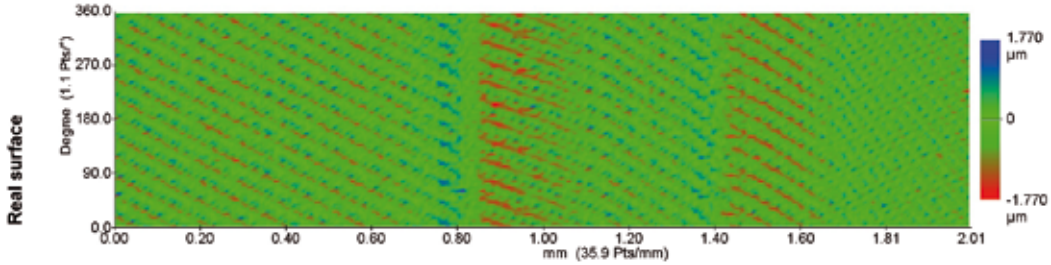
Comment:
test measurement

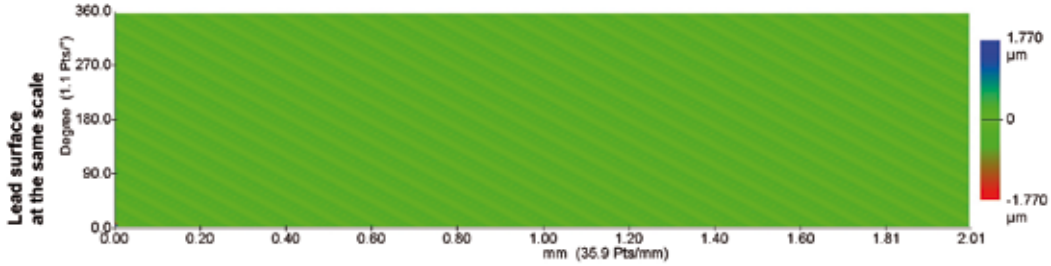
Lead parameters 5.0* / MBN 31 007-07

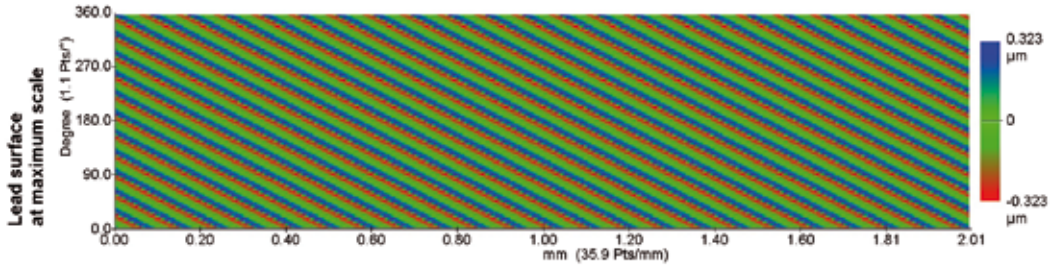
Number of starts	(DG)	=	-11	upr LEFT
Lead depth	(Dt)	=	0.65	µm
Period length	(DP)	=	0.09	mm
Cross section	(DF)	=	29.00	µm²
Cross section per revolution	(DFu)	=	319.01	µm²/U
Bearing length (%) of radial shaft seal	(DLu)	=	20.09	%
Lead angle	(Dy)	=	-0.371	° (0° -22' -15")
Profile orientation		=	peak	

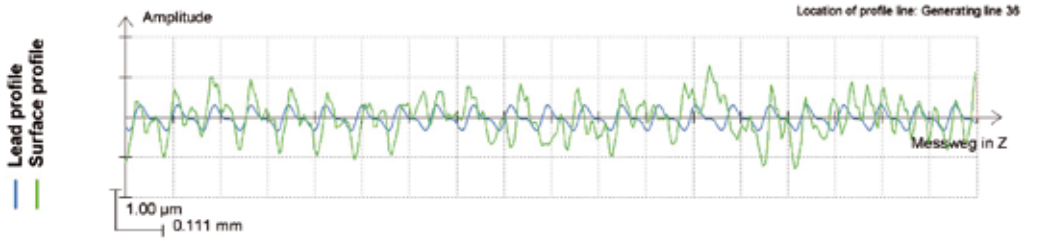
Surface roughness parameters

Evaluation length	(La)	=	10.00	mm
Cutoff wavelength	(Lc)	=	1.00	mm
Mean roughness depth	(Rz)	=	2.00	µm
Maximum roughness depth	(Rmax)	=	3.00	µm
Reduced peak height	(Rpk)	=	4.00	µm
Core roughness depth	(Rk)	=	5.00	µm
Reduced valley depth	(Rvk)	=	60.00	µm
Evaluation section lead		=	2.00	mm
Pre- / post-travel		=	2.50 / 2.50	mm
Probe ball radius		=	0.005	mm
Workpiece diameter		=	47	mm









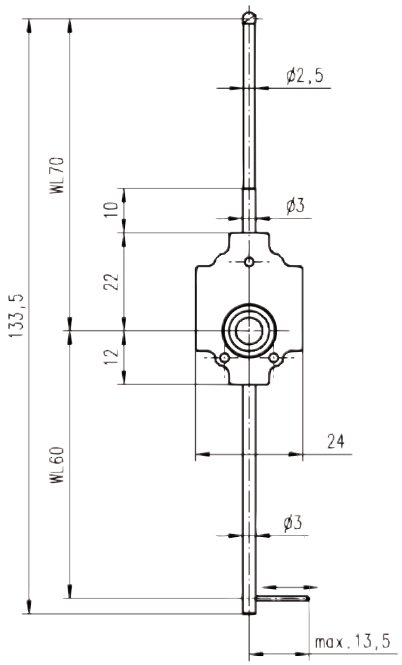
Expansion Package for Formtester: MarForm MMQ 400

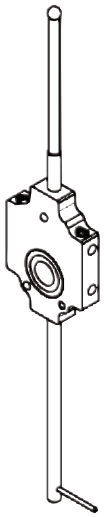
Expansion package for lead testing and lead evaluation

Can be used in combination with MarForm MMQ 200, MMQ 400, MFU 100, T7W probe and Mahr evaluation software MarWin comprising:

- Lead evaluation software package based on MarWin evaluation software
- Probe arm for T7W for lead measurement, double-ended, with diamond tip and HM ball dia. 3 mm for alignment (5400234)

Order No.: 5440675





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