

BEARING DIAGNOSTICS TESTER

SHOCK PULSE METHOD



107VF-BE

**Bearings Tester Function
Based on Shock Pulse
Measurement and
Kurtosis Measurement**

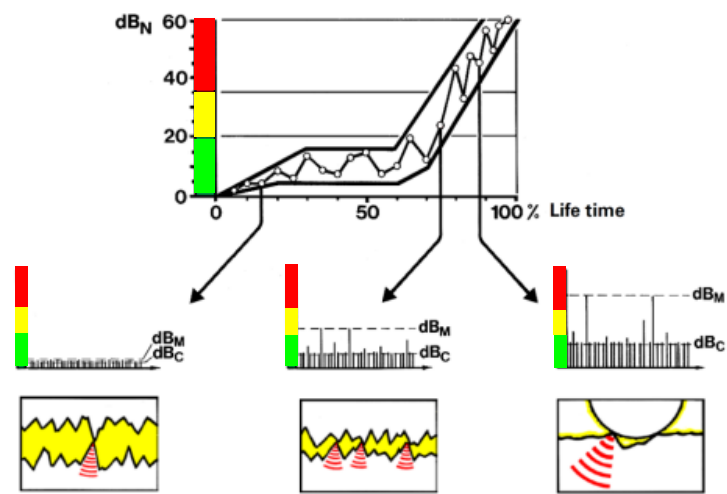


COMPACT BEARING DIAGNOSTIC TESTER 107VF-BE

SHOCK PULSE MEASUREMENT

The principle of Shock Pulse Analysis is based on:

- 1.The dBi value indicating the condition of a new, properly installed, and lubricated bearing. As defects in the bearing develop, the amplitude of shock pulses increases. Value exceeding the dBi characterizes the damage and is used to assess the condition of the bearing:
- 2.The carpet value dBc characterizes the state of lubrication. For example, when measuring the impact acceleration amplitude of a well-lubricated and properly mounted bearing, the dBm value will be slightly greater than dBc.



As defects in the bearing develop, the amplitude of shock pulses increases. Value exceeding the dBi characterizes the damage and is used to assess the condition of the bearing:

- 0..20 - good condition
- 20..35 – satisfactory condition
- >35.. - Poor condition, risk of failure

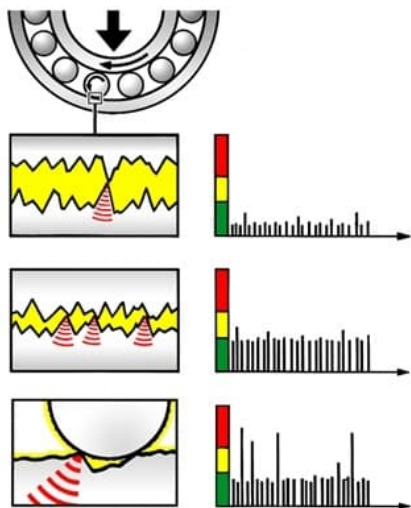
OPERATING PRINCIPLES

Distinguishes and measures two characteristic values of the shock pulse amplitude – the carpet value - dBc, and the maximum - dBm values.

Amplitude of the impact acceleration representing maximum values - dBm, relates to bearing damage, and the value of dBc depends on the state of lubrication which increases with lack of lubrication. Graphical representation in time helps to monitor the health and to predict the condition of bearing. Measurement results can be stored in the device memory.

Features

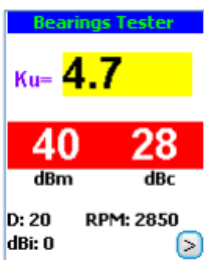
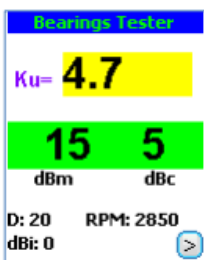
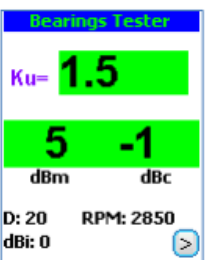
- Fast, easy, and reliable diagnosis of bearing condition.
- Easy-to-understand condition evaluation in :
 - **green-yellow-red scales**
- Precision analysis of oil film condition in the interface between the outer and inner races
- Spectrum Analysis to verify the source of high shock pulse



Kurtosis Advantage

The generation of defects leads to a change in the shape of the probability density curve $p(x)$ and, accordingly, to a change in the numerical value of the kurtosis coefficient E . The more developed the defect, the sharper the density curve. Following threshold values of the kurtosis coefficient were established:

- $Ku < 3$ – corresponds to the good condition of the bearing;
- $Ku > 3$ – the bearing can be operated until the next replacement;
- $Ku > 5$ – the bearing is not allowed to be used.



SPECIFICATIONS

Inputs	IEPE or charge type accelerometers with known sensitivity, switchable. Optical RPM transducer with IR pyrometer sensor (optional)		
Supply Voltage, V:	9		
AD conversion	24 bits		
Dynamic range	106 dB		
Frequency range	1...10000 Hz		
Vibration measurement range:			
Acceleration	200 m/s2		
Velocity	200 mm/s		
Displacement	2000 uM		
Accuracy	±5%		
Shock pulse measurement range	99 dBa		
Kurtosis Measurement			
FFT spectrum resolution	400, 800, 1600 lines		
Data storage	4GB micro SD card, built-in		
PC interface	USB		
Display	color, sunlight readable 128x160 dots		
Battery	Li-Po rechargeable, up to 8 hrs continuous operation		
Operating Temperature	0°C to 50°C		
Storage Temperature	-20°C to 60°C		
Operating Humidity	-		
Dimensions	132 x 70 x 33 mm		
Weight	150 g		

STANDARD DELIVERY

P77 bearings probe



- Vibration Analyser/Bearing Tester
- battery- LiPo



carry case



USB charger with cable,

OPTIONAL FEATURES

Balancing overview

Balancing Setup
RPM 1450
Planes 2
Points 4
Weights Add
Free Loc.
Data: Vibrometer
> START >

RUN #3: PL 2 PNT 4
19.38 38°
uM
RPM 0

in-situ balancing

RUN #0: PL 1 PNT 1
109.30 108°
uM
RPM 1381

PL 1
Weight: 0 g
Angle: 0°

RUN #0: PL 1 PNT 1
109.30 108°
uM
Ready: RUN #0 PNT#1
Go Ahead
ReDo
RPM 1381

PL 1
Weight: 20.00 g
Angle: 90°

Thermometer (-T2 version)

04/09/2022 14:13:57
Vibration
Tachometer
Thermometer
Bearings
Settings
EFT

Thermometer
27.3 °C
81.1 °F
STOP 5494

Tachometer (-T versions)

04/09/2022 14:07:11
Vibration
Tachometer
Thermometer
Bearings
Settings
EFT

Tachometer
RPM= 1385.6
Hz= 23.09
RUN 69

Non-contact optical tachometer, IR thermometer



Built-in balancing reports

Balancing



File name				info/OneDrive/Desktop/701 (230307_114634 - Balancing)															
Plane	Point	0_Run		Trial_Run		Initial Wght Info		Compens. Value		Influence Coefficients		Theoretical residue		Correction Wghts Info		Run_Final Value			
		Amp.	Deg	Amp.	Deg	Wght	Deg	Amp.	Deg	Amp.	Deg	Amp.	Deg	Wght	Deg	Amp.	Deg		
1	1	567.9969	262°	503.6707	258°	5		503.6707	258°	14.6145	108°			34.4639	330°				

Step 0. Initial reading (Run_0)
Point 1
568.00
262°
230307_114634 - Balancing
No
M/S^2
1
1
1
0
0
0
07.03.2023 11:46:34

Step 2. Taking trial readings (Run_NN)
Point 1
503.67
258°

Theoretical residue imbalance
Point 1
0.00
0°

Step 1. Placing Initial Weights
Plane 1
5.00
0°

Step 3. Calculated Correction Weights
Plane 1
34.46
330°

Step 4. Taking trim readings (Run_Final)
Point 1
0.00
0°

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