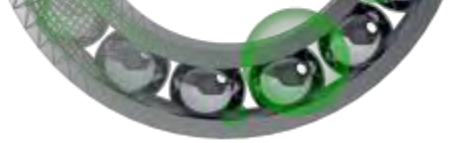


SPM HD

SPM® Instrument

1969

The Shock Pulse Method is patented

SPM milestones

1969 – The Shock pulse method is patented

1970 – SPM is founded to develop the method

1980 – SPM installs the one-millionth measurement point

1984 – Lubrication measurements are patented

1990 – Shock pulse and vibration measurement are combined

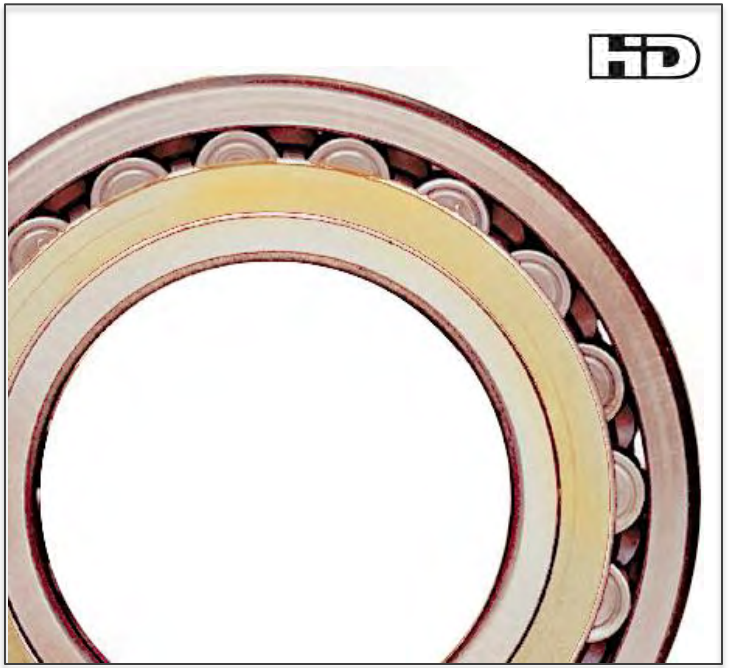
1997 – Evam was introduced

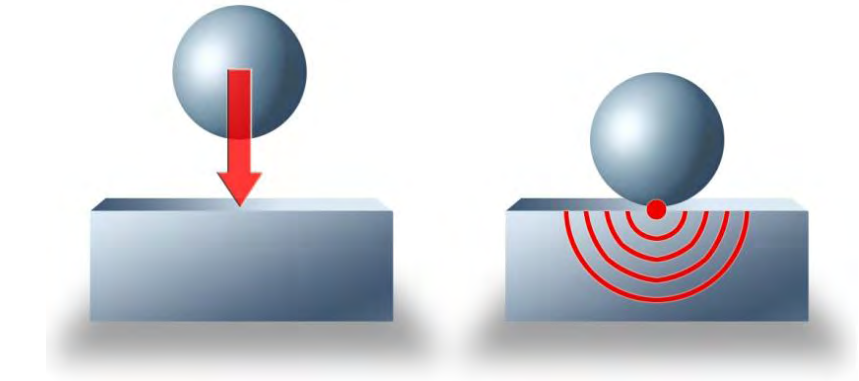
2002 – SPM Spectrum introduced

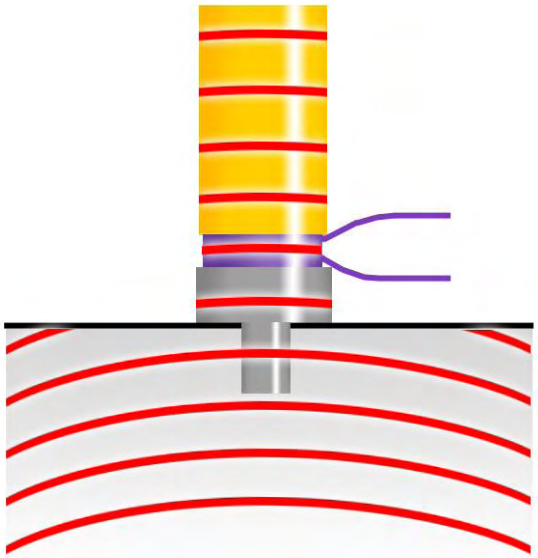
2006 – SPM Spectrum with evaluation

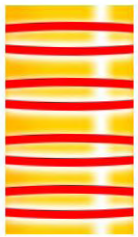
2010 – SPM HD

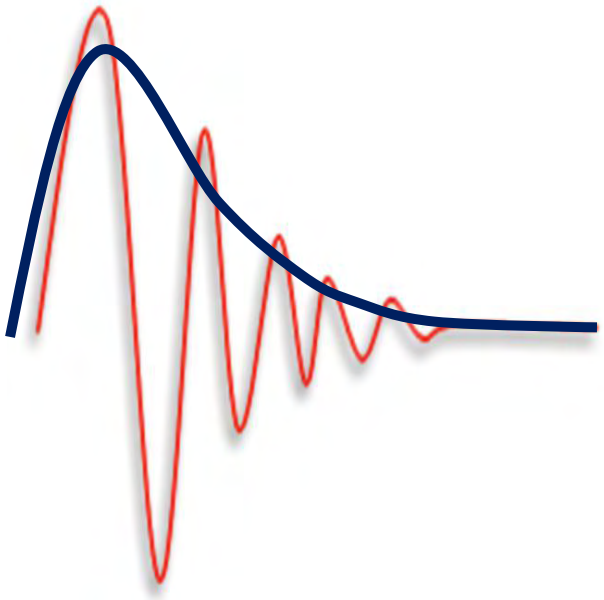
Higher Definition



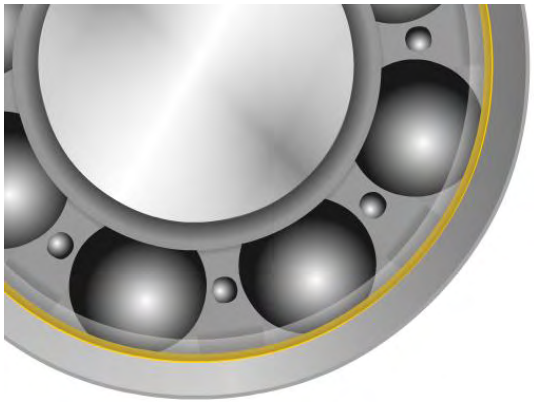


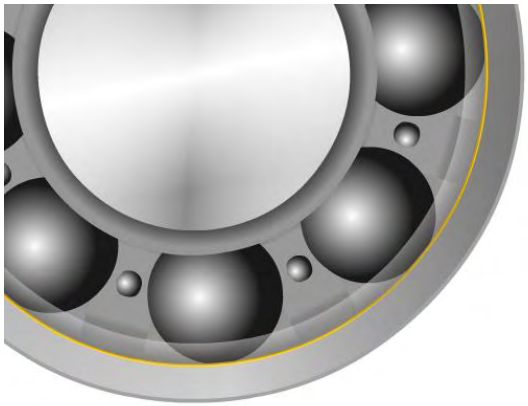


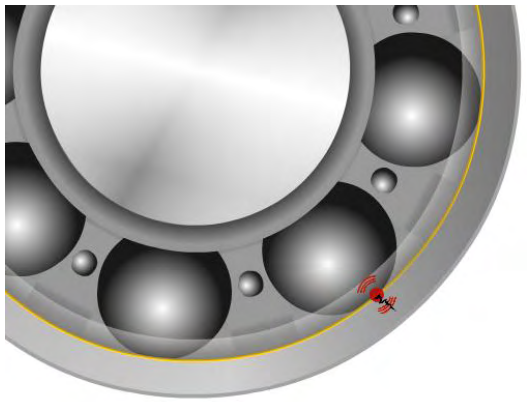


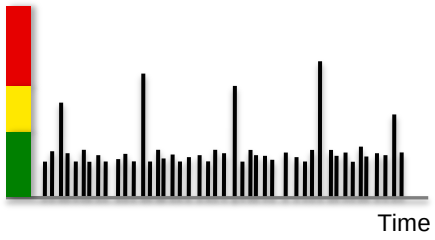


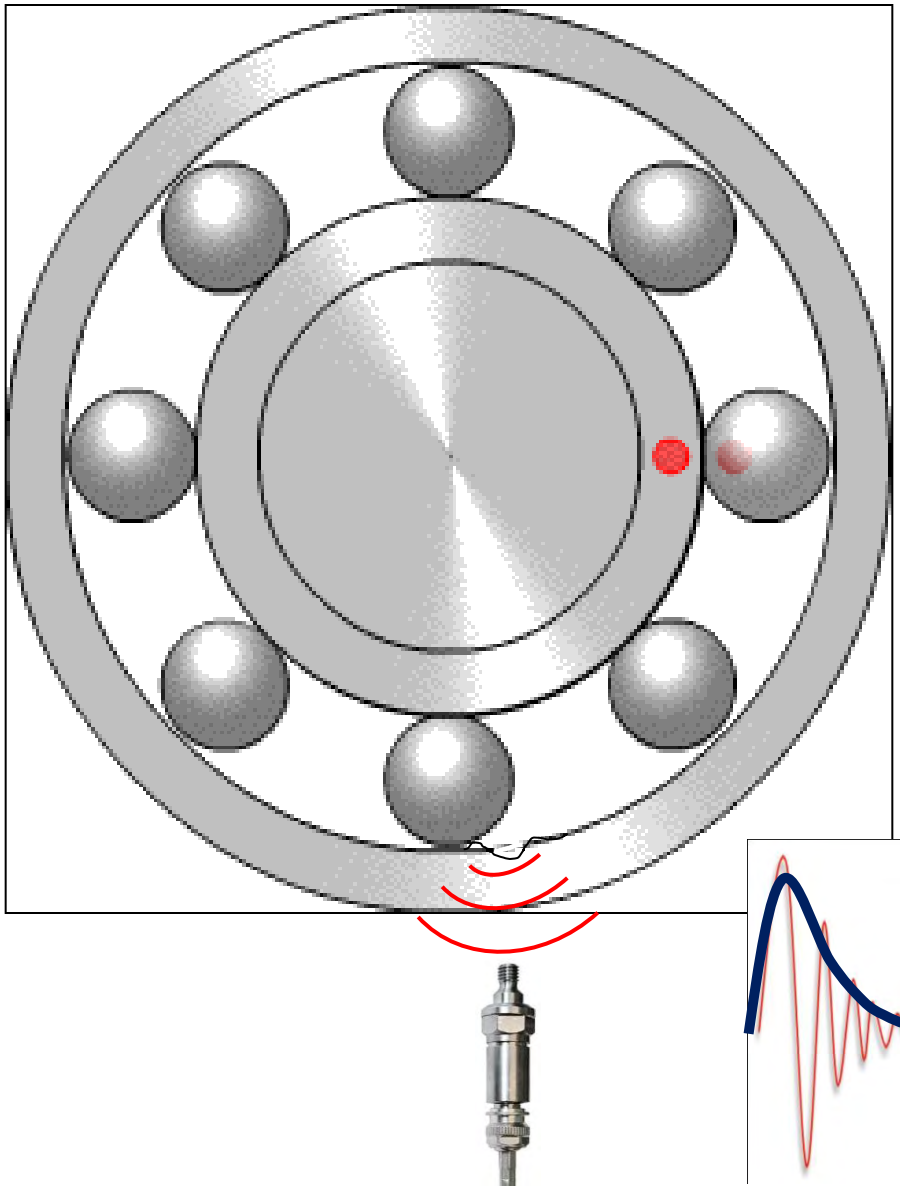
Shock level and pattern

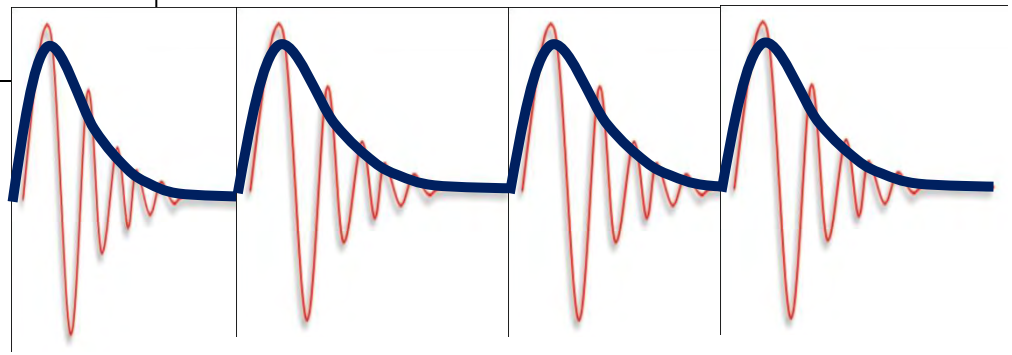






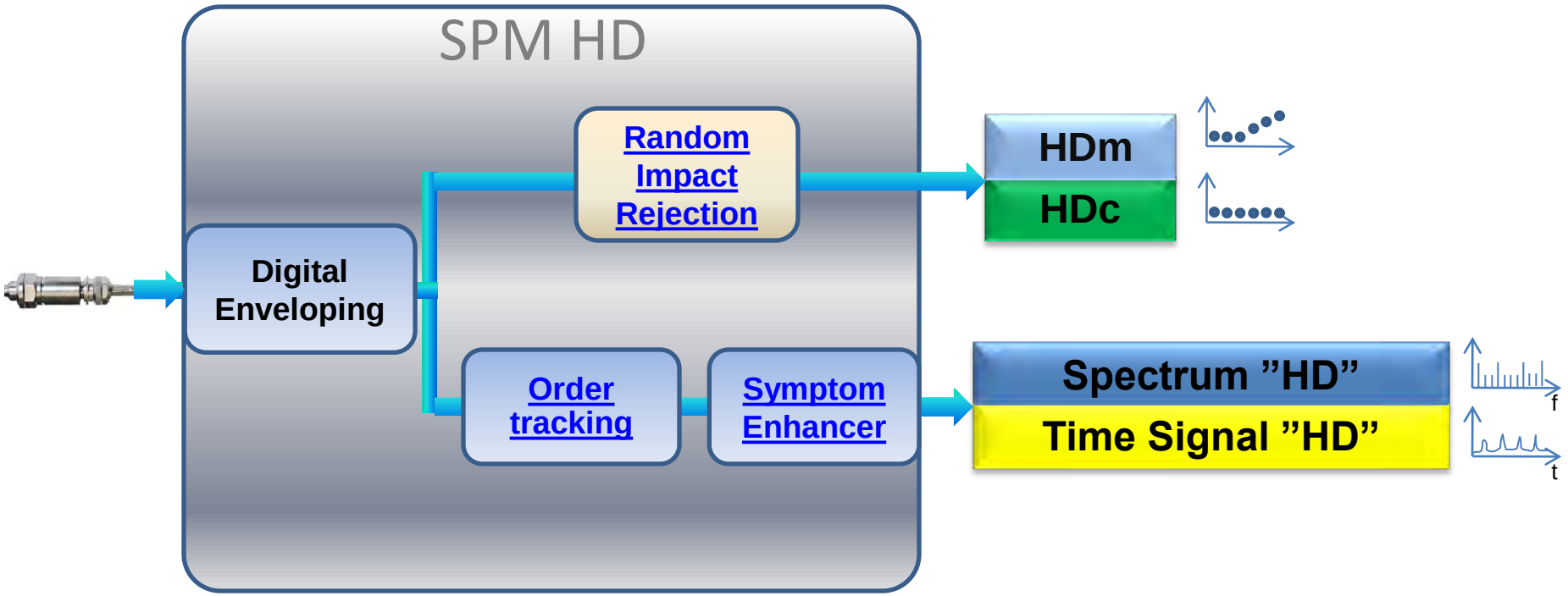






The SPM HD Method

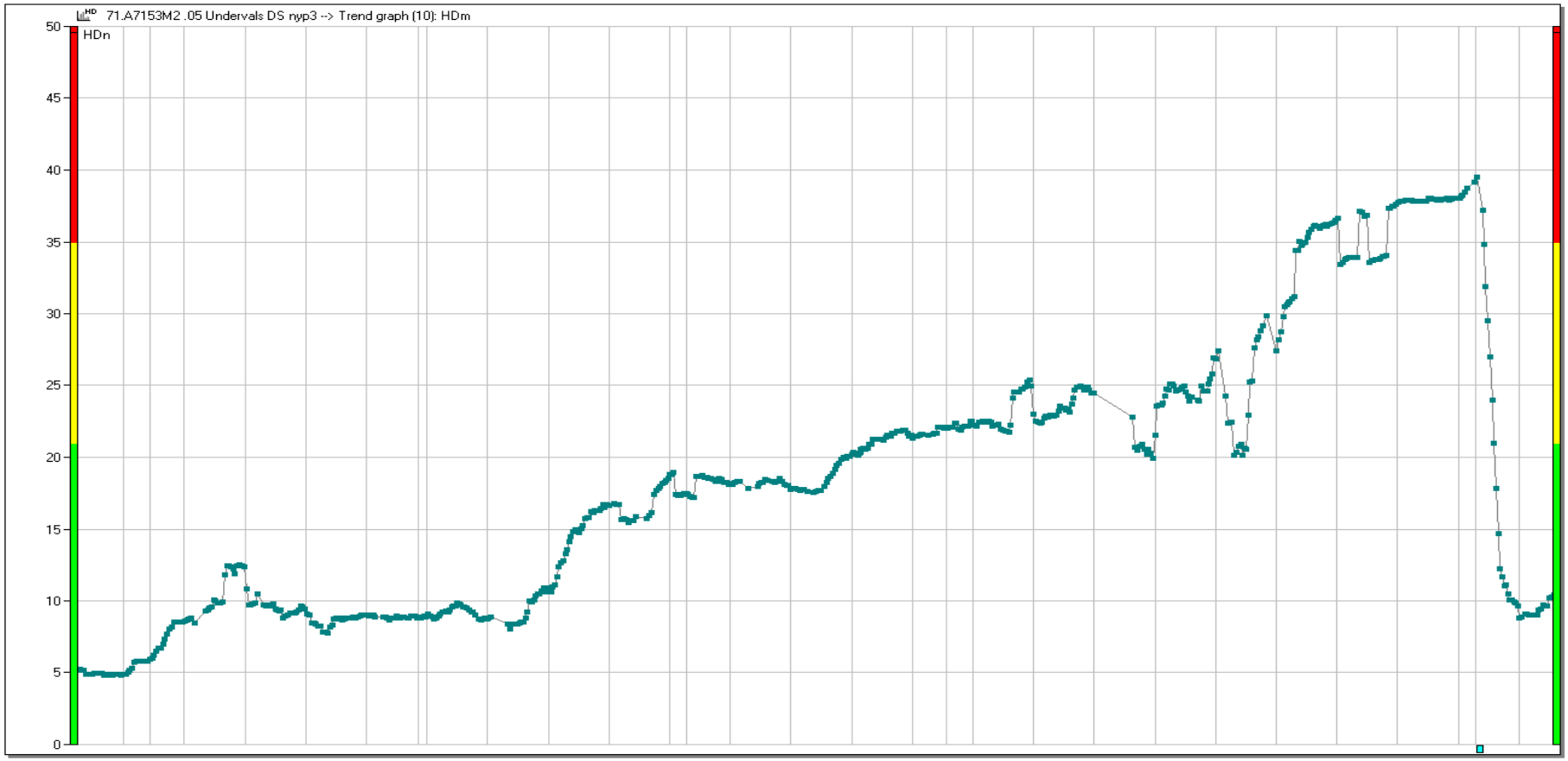
Inputs & Outputs



Case 13 Holmen Hallstavik

“Twin Wire Press”

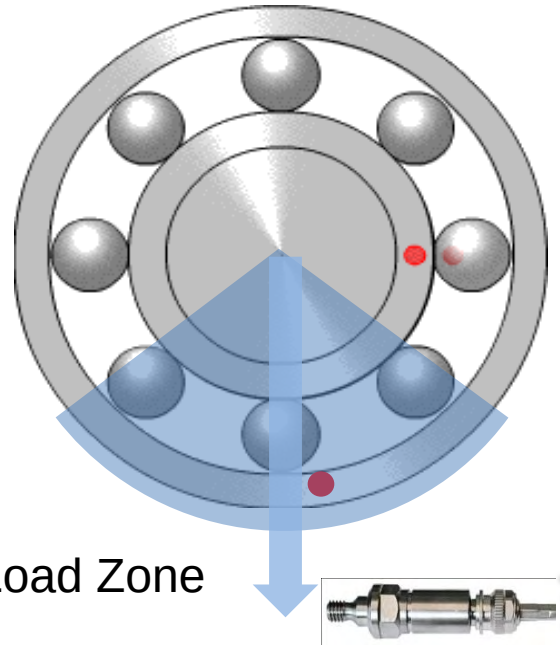
HDm trend



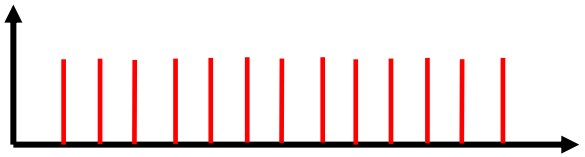
June 25 2010 September 21 2010 December 1 2010

Bearing Parameter Fundamentals

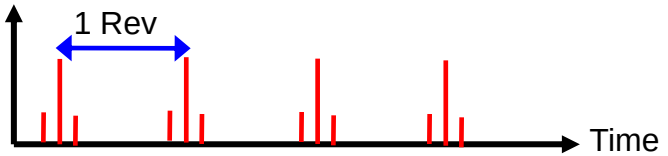
Load zone & Modulation



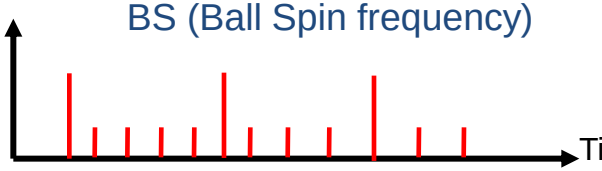
BPFO (Ball Pass Frequency Outer race)



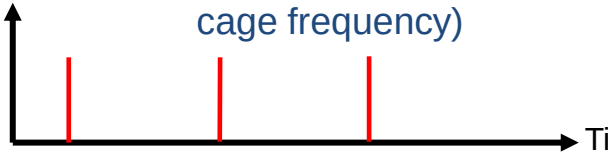
BPFI (Ball Pass Frequency Inner race)



BS (Ball Spin frequency)

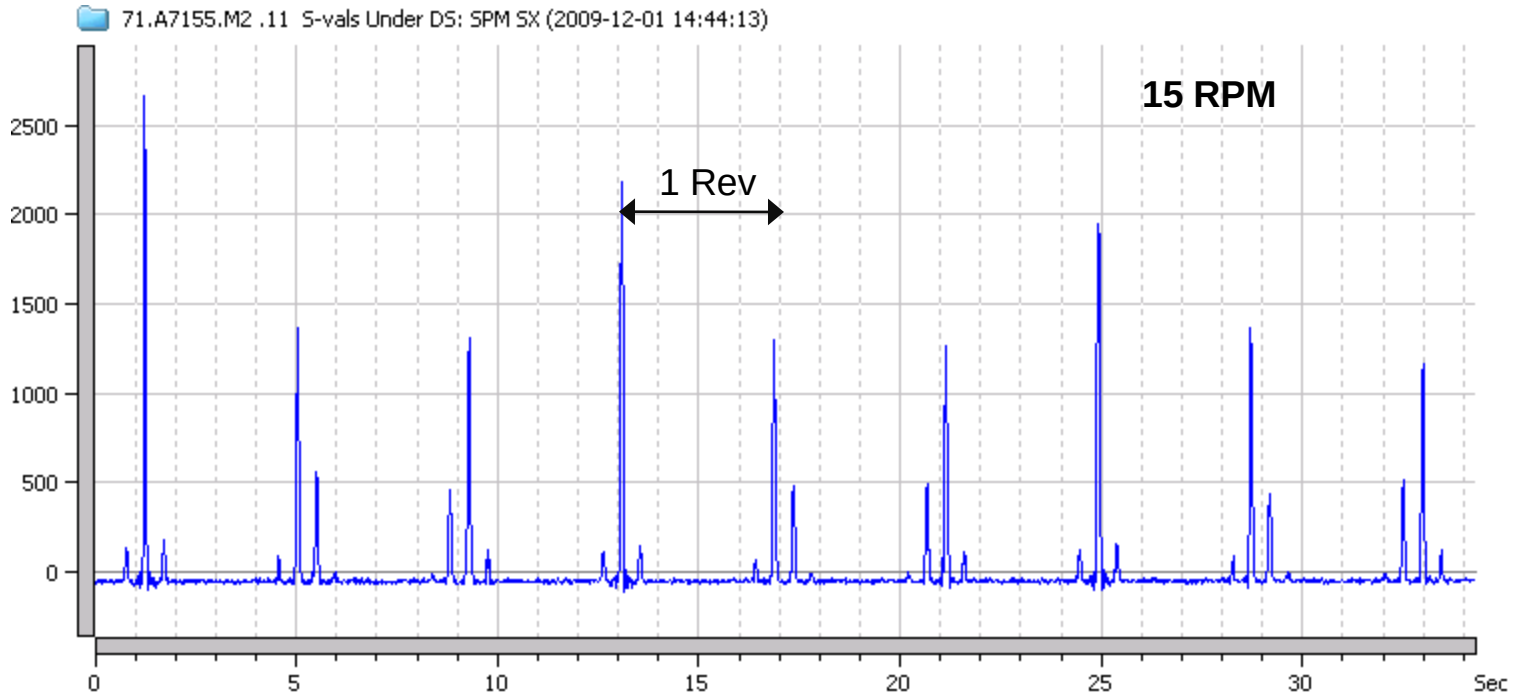


FTF (Fundamental Train Frequency/ cage frequency)



Inner Race Damage

Time Signal - Field Example (Twin Wire Press Hallstavik)

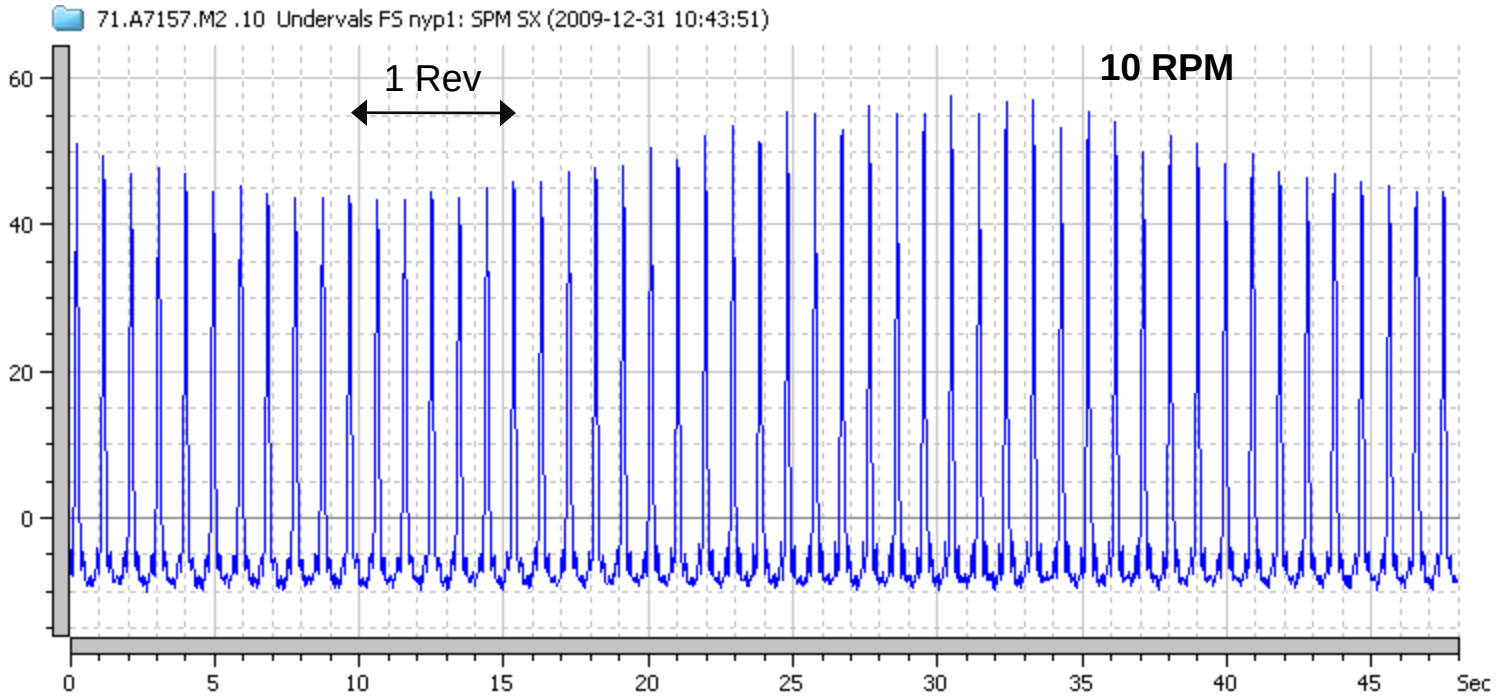


Spherical Roller Bearing (FAG 22 320)
BPFO = 6,59
BPFI = 9,41
N =1 6

Example of a ”sharp” inner race damage

Outer Race Damage

Time Signal - Field Example (Twin Wire Press Hallstavik)

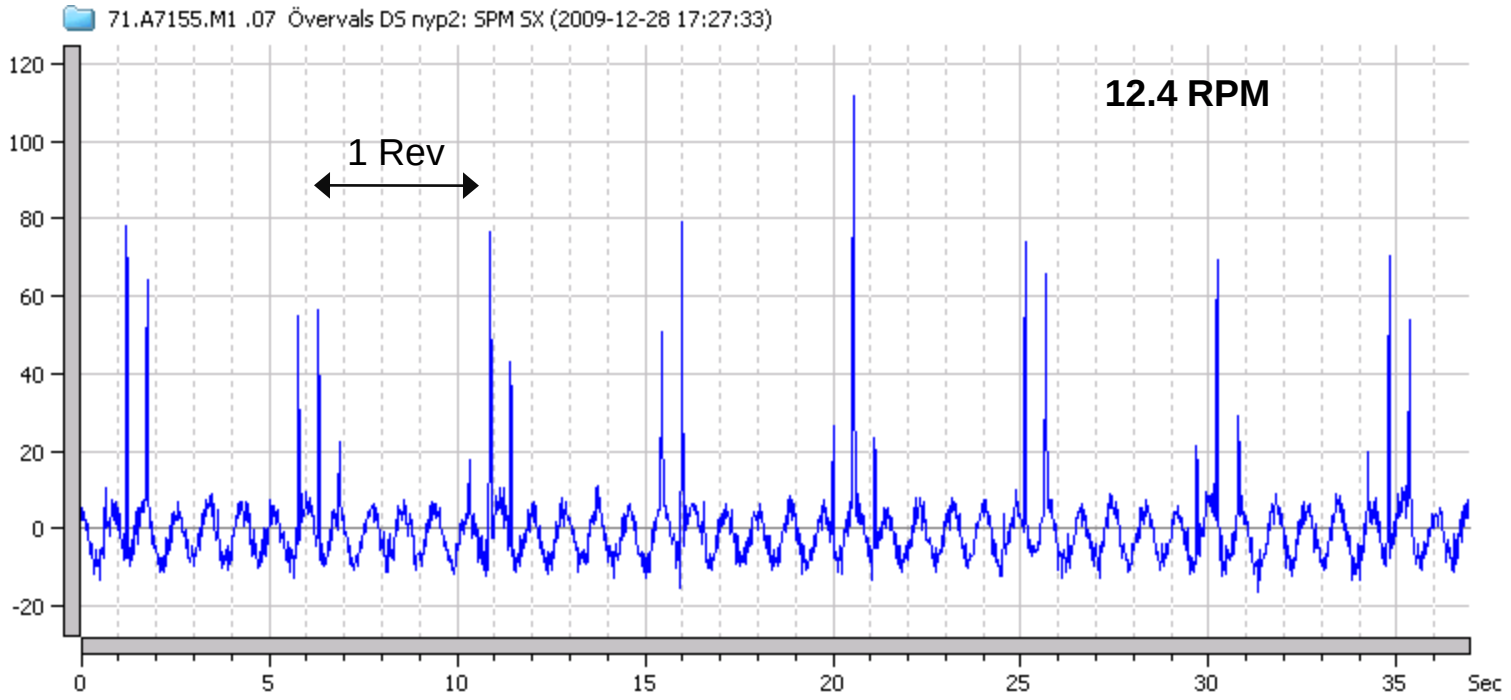


Spherical Roller Bearing (22 330)
BPFO = 6,18
BPFI = 8,82
N = 15

Example of an outer race damage

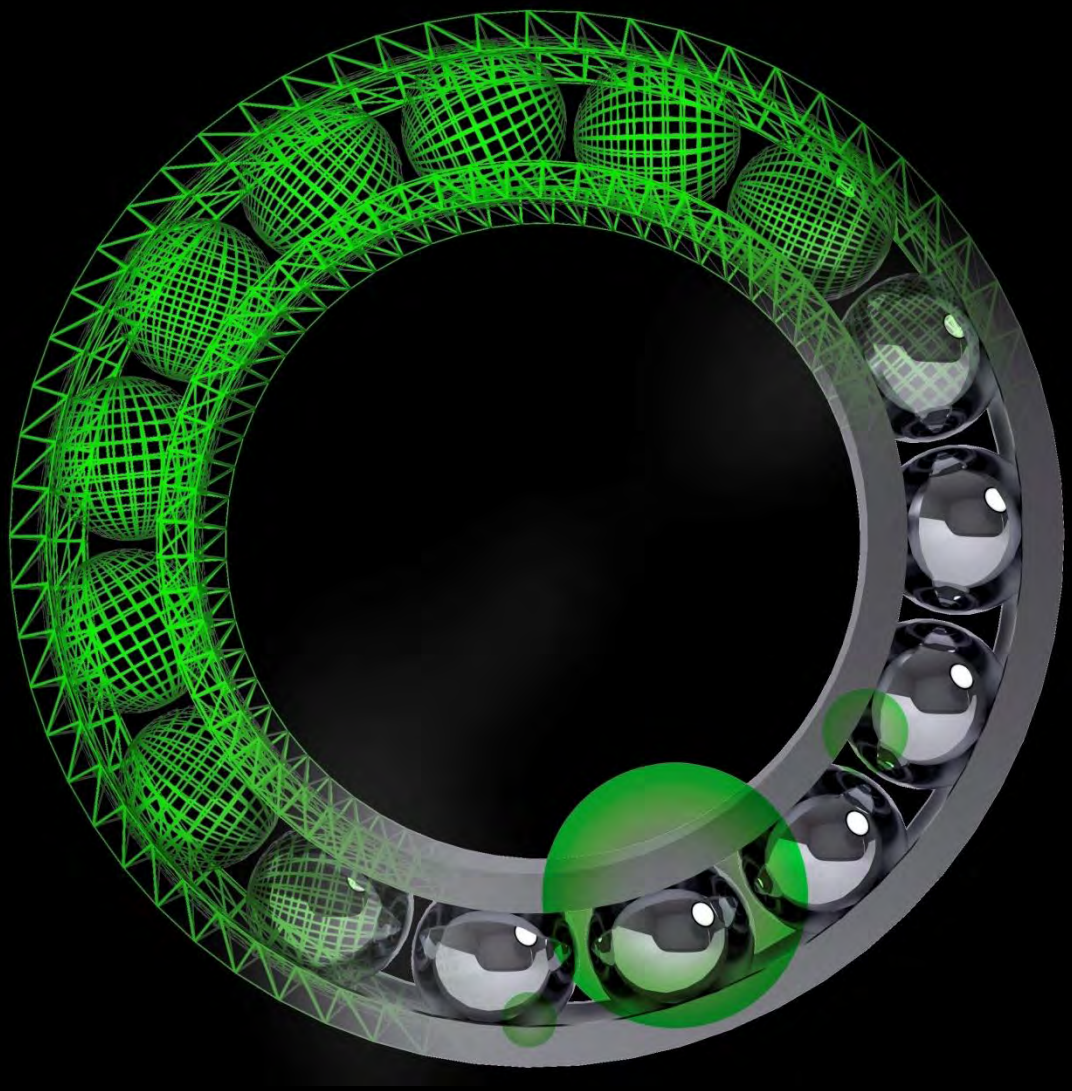
Outer & Inner Race Damage

Time Signal - Field Example (Twin Wire Press Hallstavik)



Spherical Roller Bearing (22 330)
BPFO = 6,18
BPFI = 8,82
N = 15

Example of a combined inner race and outer race damage



SPMHD

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