

AE detected from rotating ball-bearings under noisy industrial environment

- ❖ Broad-band AE transducer (50-1000 kHz) placed on the bearing housing with a built in 27 dB preamplifier .
- ❖ Bandpass filter (50 kHz- 500 kHz).
- ❖ 40 dB amplifier.
- ❖ 12 bit A/D converter working at 1.5625 MHz frequency.

Specimen	Health state description
1	A good bearing operating under normal conditions.
2	A bearing operating in underlubricated conditions.
3	A bearing with a specific little damage (roughness) on the outer race.
4	A bearing which has been severely damaged with visible spalling and fatigue cracking on the outer race surface.

Specimen	Number of AE Realizations	Num. samples per each realization	Health state
1	101	4096	Good
2	101	4096	Problematic
3	101	4096	Damage
4	101	4096	Failure

Matlab function for “.dgt” file read:

```
% Function for reading data from .dgt files
%inputs - filename and path to the file
function mymass = loaddata(filename, path)

%Here we ara split the path and filename
f = strcat(path, '\', filename);

%here we obtain the ID of open file if fid != 0, then ok.
fid = fopen(f, 'r');

%here we are reading the binary data from the file
mymass = fread(fid, 'int16');

% After a session it is necessary to release the file ID
fclose(fid);

end
```