



Pepper Maintenance®

The Hottest Name in Reliability!

Edward LaPreze, CMRT

Level II Thermographer

Category II Vibration Analyst

Certified in Precision Alignment / Balancing

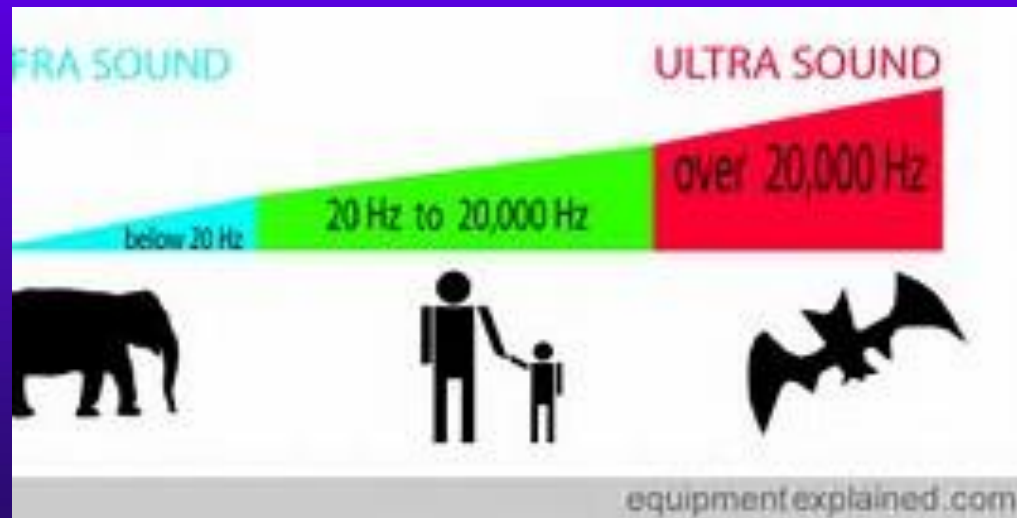
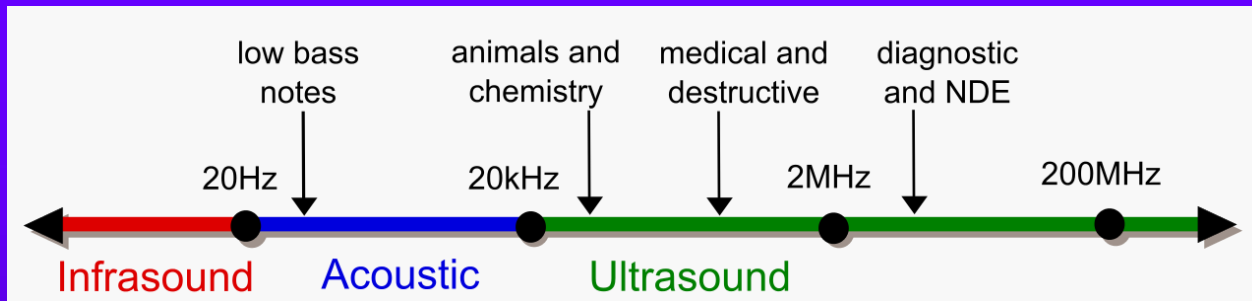
SMRP Member



Ultrasound

- Our ears hear from 20HZ to 20kHz
- Ultrasonic is over 20kHz
- Equipment converts the ultrasonic sounds to a range we can hear
- Noisy environments do not interfere with ultrasonics

The Sound Spectrum





Benefits of Using Ultrasonics?

➤ Electrical - Mechanical

- ✓ Detect problems without interrupting service or production
- ✓ Improve efficiency – usage and product movement
- ✓ Increase life of equipment
- ✓ Reduce utility costs



Different Uses for Ultrasound

- Leak Detection - compressed air systems, blowers, liquid movement
 - ✓ Anything with a pressure differential
- Lubrication
 - ✓ Motors
- Electrical faults
 - ✓ Corona – Only above 1000v
 - ✓ Arcing
 - ✓ Tracking
- Steam Trap Operation
- Excellent compliment to other technologies

Air Loss → Cost \$



➤ Just one air leak?

Diameter of air leak	CFM of air lost at 100 psig	x 8 = cubic ft. lost per day	Annual cost at \$0.18 per 1,000 cu. ft. *	Annual cost at \$0.32 per 1,000 cu. ft. *
1/32"	1.62	777.60	\$51	\$91
1/16"	6.49	3,115.20	\$205	\$364
1/8"	26	12,480.00	\$820	\$1,458
1/4"	104	49,920.00	\$3,280	\$5,831
3/8"	234	112,320.00	\$7,379	\$13,119
1/2"	415	199,200.00	\$13,087	\$23,267
3/4"	934	448,320.00	\$29,455	\$52,364

Source: UE Systems

Steam Loss → Cost \$\$\$



➤ Steam loss is higher

Steam leak - 100psi

Leak	lb/hr	Loss / Day	Loss / day	Loss /
1/32	3.3	79.2	\$4	\$1,445
1/16	13.2	316.8	\$16	\$5,782
1/8	29.7	712.8	\$36	\$13,009
1/4	52.8	1267.2	\$63	\$23,126
3/8	82.5	1980	\$99	\$36,135
1/2	119	2856	\$143	\$52,122
3/4	162	3888	\$194	\$70,956
1	211	5064	\$253	\$92,418

Source: UE Systems



Blowers

➤ Efficiency Loss

- ✓ Loss of product volume flow
- ✓ Increase air needs
- ✓ Line product plugs
 - 1/2 air hose in a blower line



➤ Ultrasound compliments other
Technologies

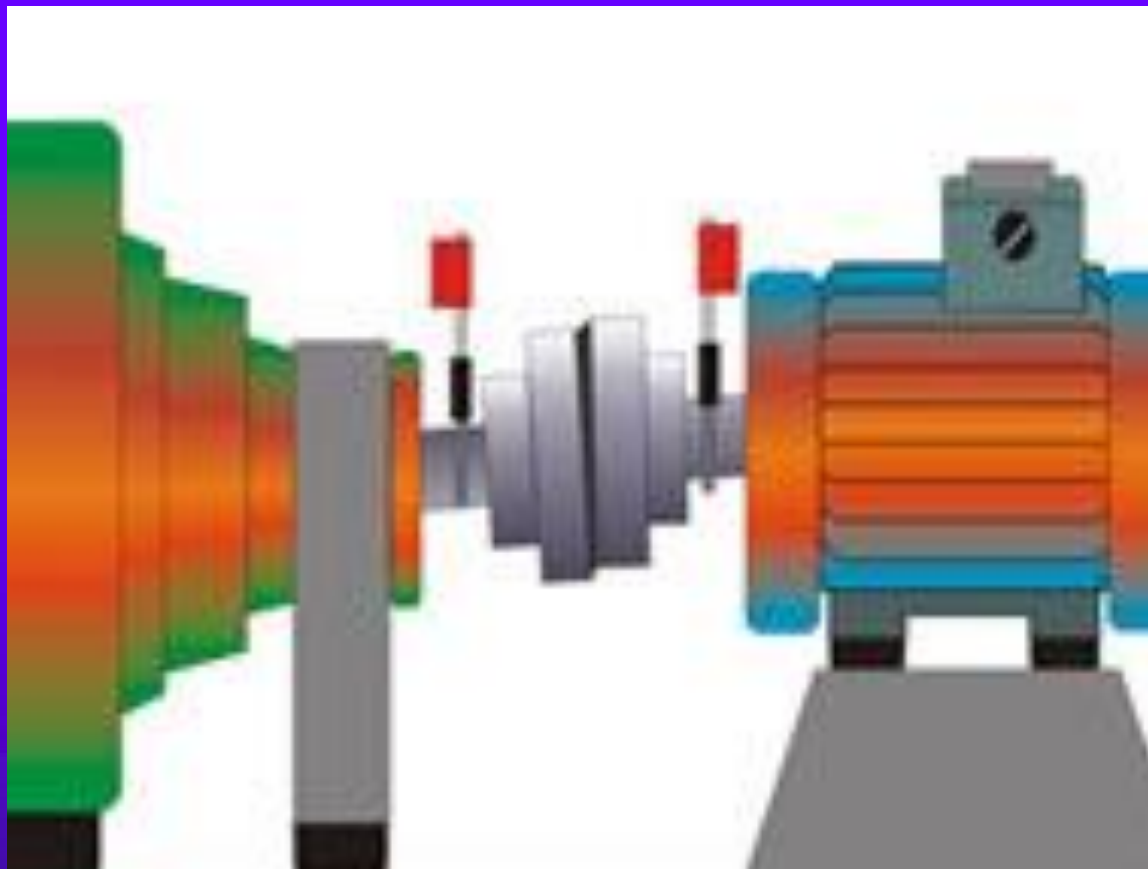




Conclusion

- Performing ultrasound inspections saves \$\$
- Increases product movement efficiency
- Ensures proper lubrication
- Improves bearing fault detection





Questions?

Thank You!