



Gas/Electric Partnership - Feb 9, 2017

Technology Update – New Torsional Damper

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- Reciprocating compressors
 - Operational advantages
 - Financial advantages
- Challenge – Torsional & Acoustic Systems
- Torsional vibration (twisting) vs. lateral vibration (shaking)
- Mass-elastic properties can be changed
 - Adding inertia
 - Changing stiffness
 - Viscous damping
- Tune natural frequencies out of the operating speed range
- Speed blackout ranges are sometimes required.



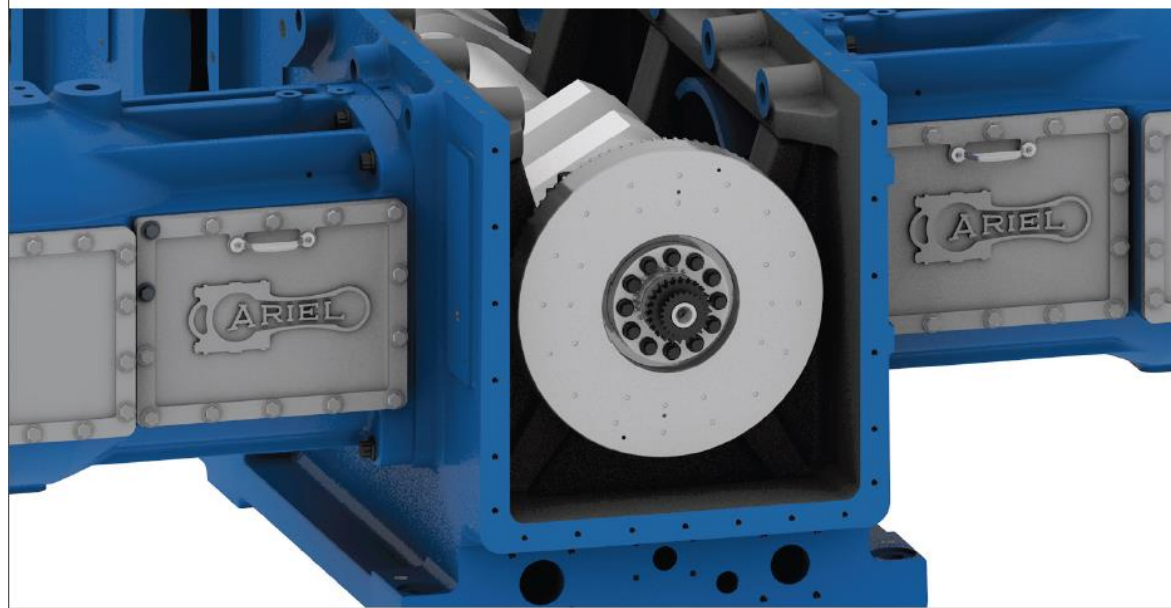
ARIEL CORPORATION Product Release Announcement

35 Blackjack Road

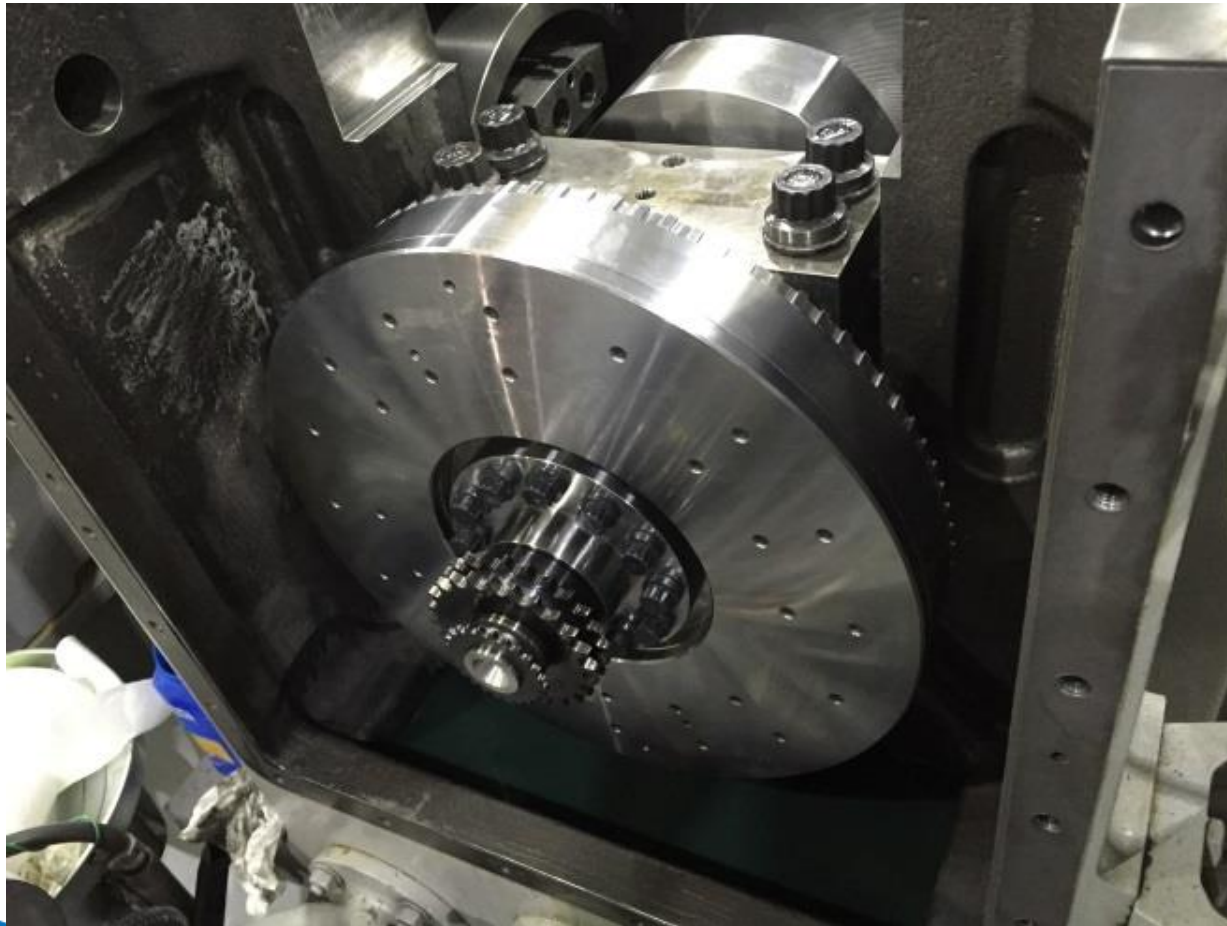
Mount Vernon, OH 43050

www.arielcorp.com

New Torsional Damper for Large Frame Compressors



- A torsional damper is now available on the large Ariel frames; JGC:D:F/6, KBZ:U/6 and KBB:V/4/6.
- Effectively reduces torsional vibration associated with compressor crankshaft modes
- Can eliminate speed restrictions within the operating speed range
- Significantly reduces angular deflections during operation which has shown to reduce high frequency lateral vibration (Torsional to Lateral vibration)



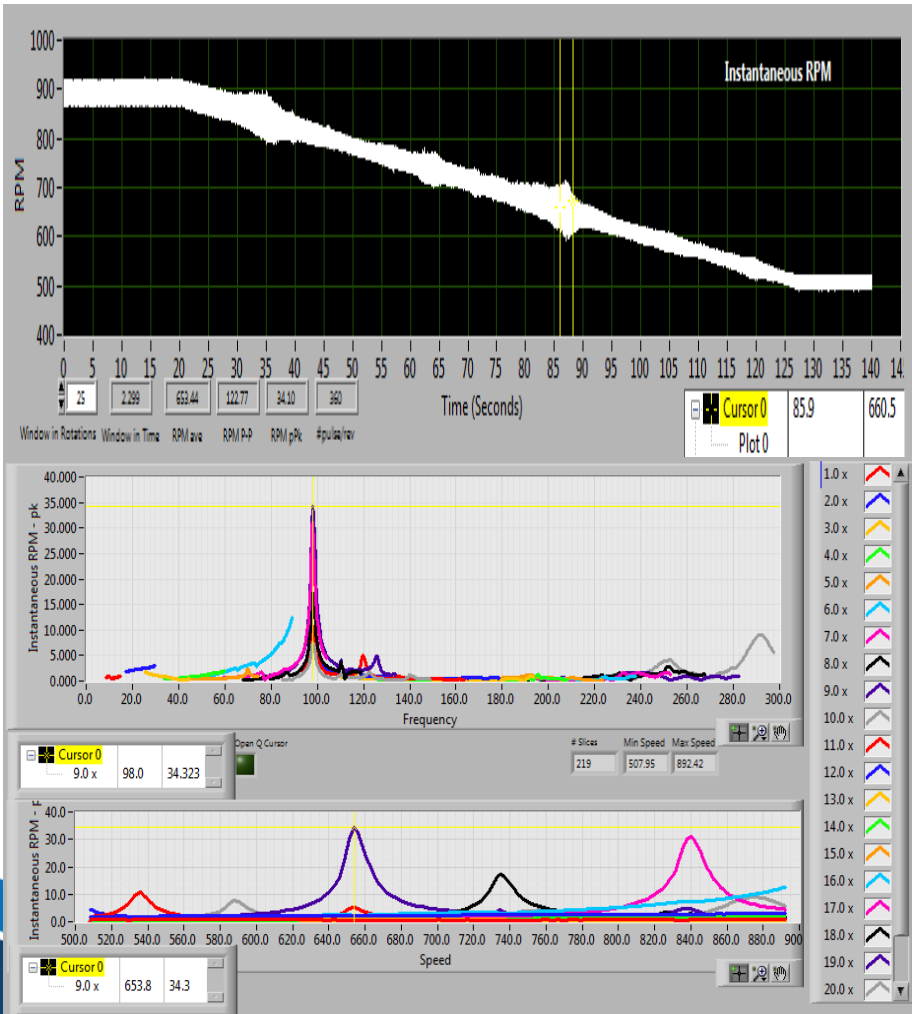
Torsional Damper Update:

- Over 40 dampers are installed with an estimated cumulative run time of **> 200,000** hours.
- 8,000 & 16,000 hour inspections completed with excellent results.
- 48,000 hour replacement is recommended. Inspection / refurbishment options may extend the usable life of the component.
- Available for field retrofit on older units.

KBZ6 – Torsional Response Comparison



No Damper – 500-900 rpm

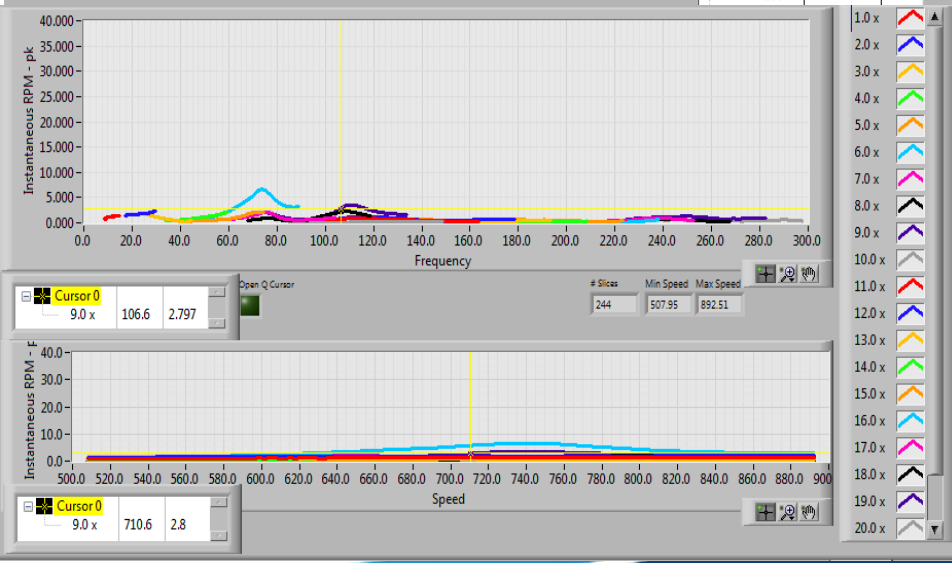
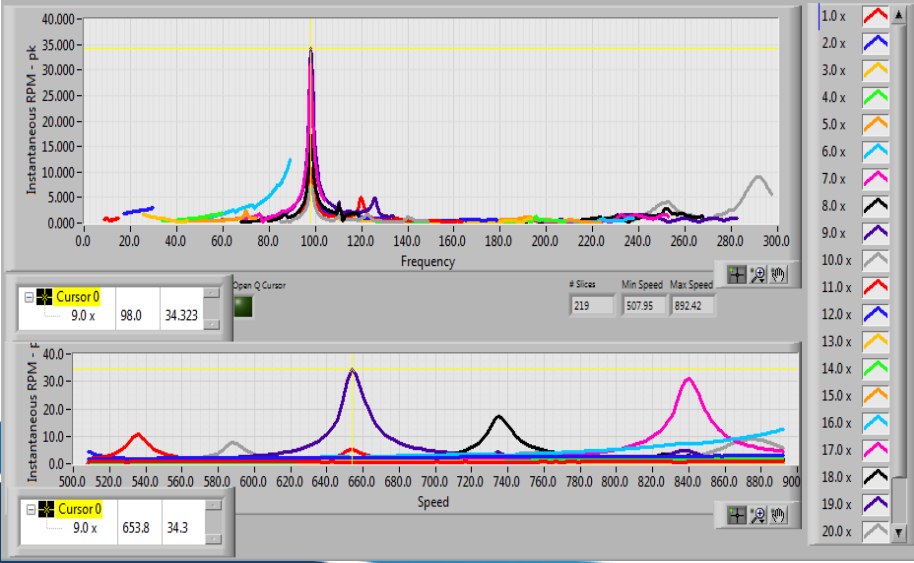
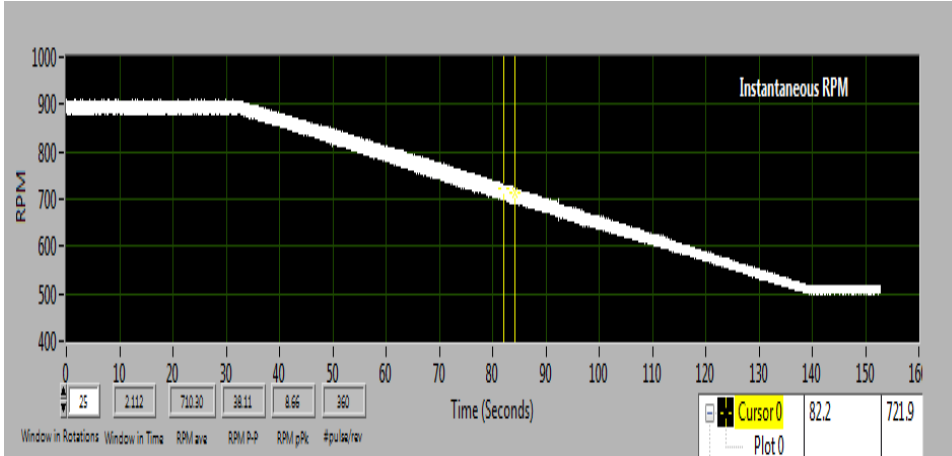
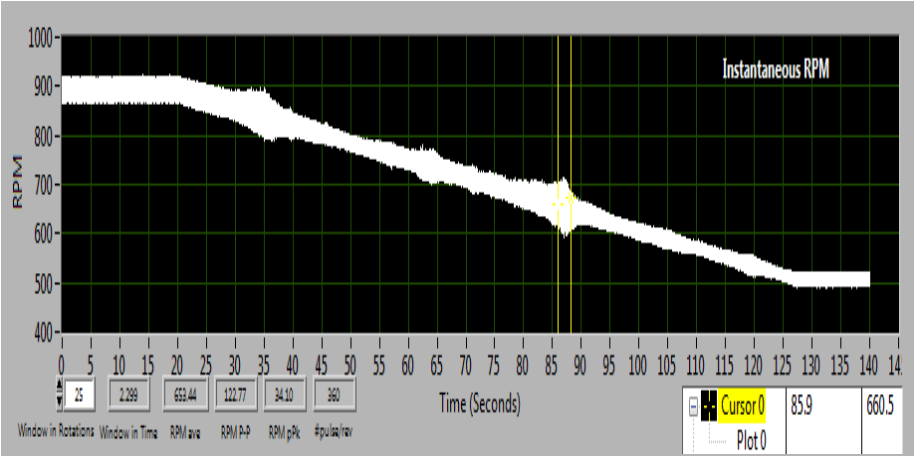


KBZ6 – Torsional Response Comparison



No Damper – 500-900 rpm

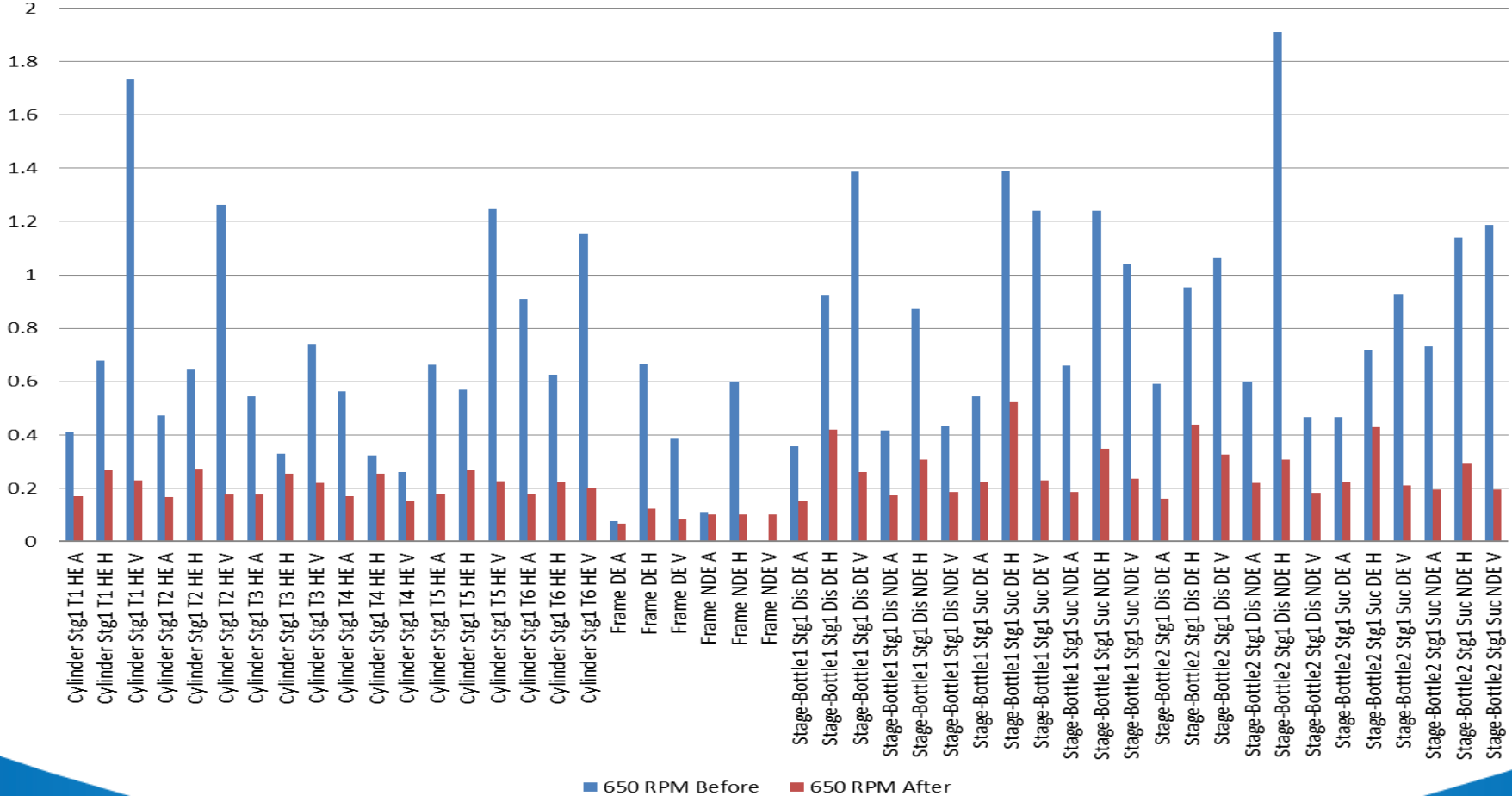
Damper Installed – 500-900 rpm



KBZ6 - Lateral Vibration Response Comparison



650 RPM Vibration Route Before and After Detuners





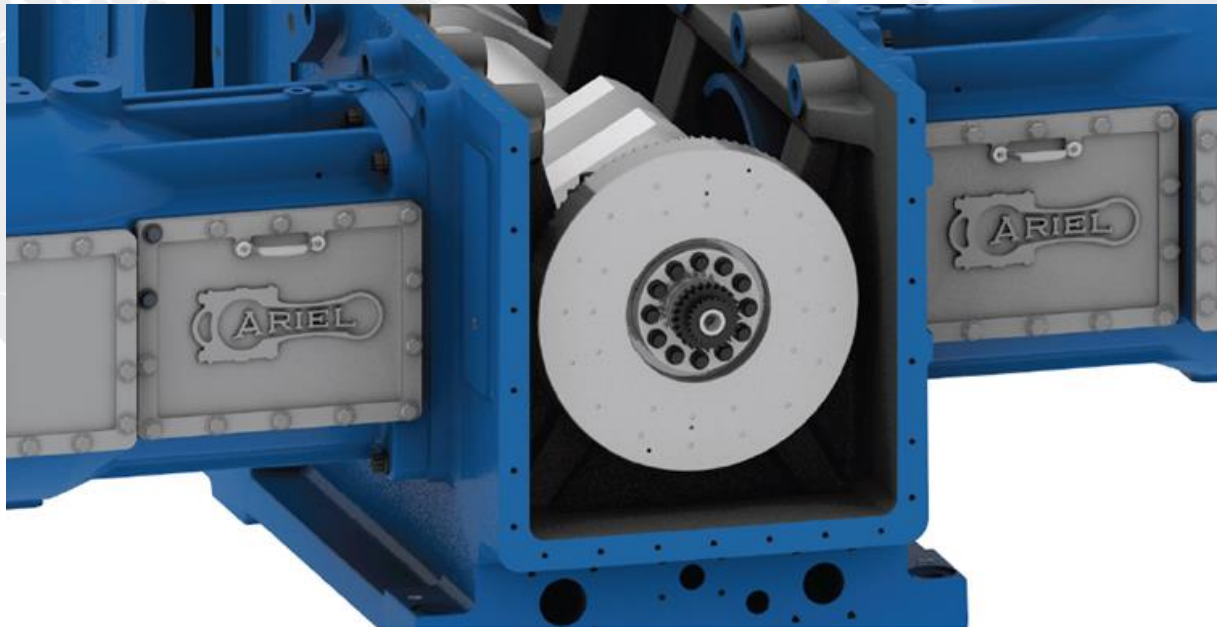
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Thank You



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