

COMPLETE START-TO-FINISH SUPPORT - TIMELY COMPRESSOR OVERHAUL BY RMS GETS PLANT UP AND RUNNING AT FULL CAPACITY.

By Ryan Rottier, Product Director - AC Compressor Centrifugal Compressors

RMS recently worked with a customer who experienced a catastrophic failure of their AC Compressor D16JR Single-Stage Overhung Compressor. Before working with RMS, this customer worked with another vendor to source a replacement impeller, which failed without warning and caused a significant loss to productivity. When the customer reached out, RMS representatives quickly provided support and formulated a plan to bring the plant back online. Thanks to RMS' experienced AC Compressor team and access to AC Compressor assets, RMS helped the customer get their plant back online in a timely manner despite this unexpected failure.



Figure 1: The inlet nozzle, casing, and impeller were all damaged beyond repair.

The customer has two compressors that run in parallel, pulling steam off an evaporator as part of a sodium sulfate refining process. The impeller on one of their two AC Compressor D16JR compressors split in half, causing a catastrophic failure of the compressor. The inlet nozzle, casing, and impeller were all damaged beyond repair. There were no warning signs (vibration, performance change, etc.) indicating this failure was imminent, so the customer was caught off-guard. With one of the compressors down due to the failure, their production rates reduced significantly.

Fortunately, the customer had a spare rotor from the failed compressor as well as a surplus D16JR compressor on-hand. This surplus compressor was a little different than the compressor that failed, however. RMS engineers evaluated the surplus compressor's design and compared it against the original compressor to determine what modifications were needed to make a suitable replacement for the failed compressor. The primary difference was in the inlet nozzle design, but RMS was able to re-design the surplus inlet nozzle and have it machined to fit and work with the spare rotor from the failed compressor. The RMS Engineering team quickly released a repair drawing, and the RMS Sourcing team was able to work with a machine shop in Houston for a quick turnaround.

Besides the fit, the other area of concern with the surplus compressor was its condition, since it had been sitting in the elements for several years. The bearing housing, in particular, had a lot of rust and looked like it may need significant work to be usable, which was confirmed once RMS cleaned and inspected it.



Figure 2

Significant corrosion was present on the surplus unit's bearing housing, so RMS worked with the customer to evaluate the bearing housing from the failed compressor. Upon inspection of the failed compressor's bearing housing, significant cracks were found, however this bearing housing was still in much better shape than the surplus compressor bearing housing. The RMS Engineering team quickly developed a repair plan for the failed compressor's bearing housing, and the RMS-Mepco machine shop was able to complete the repair in time for compressor assembly as planned. Other unplanned work included rebalancing the rotor and repairing cracks in the backplate. All of these unplanned repairs were addressed quickly by the Engineering and Houston Operations teams.

RMS also provided field service support to get the repaired compressor installed on-site and ensure the commissioning process went smoothly.

This complete support from start to finish allowed RMS to monitor the entire repair process and help the customer get their plant up and running at full capacity in a timely manner while ensuring all of the work was done with the highest quality.

Thanks to RMS' technical expertise, the team was able to assess the situation, find the best solution with the tools on hand, and guide the repair process leading to the most efficient and highest-quality deliverables. Our mission to constantly communicate with customers allows for a united response during high-pressure situations, and a result both parties were proud to deliver.

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