

COOPER RF2B - 24 REFURBISHED AND SEALS UPGRADED

By Tom Keating, PE

A Midwest utility company had its Cooper RF2B-24 two stage centrifugal compressor refurbished and the seals upgraded by RMS. The compressor is used in booster service primarily in the winter months, with outage availability in the summer to late fall. RMS assisted this customer with a bearing upgrade in September 2008, which addressed repeated bearing failures. In September 2015, RMS renewed the rotor to the customer's specifications and made recommendations for upgrades and repair for a future outage. This led to an award to RMS in June 2016 to refurbish the entire compressor at its Bethlehem shop and to design, manufacture and install an upgraded seal package.



Figure 1

The customer had been experiencing high oil leakage into the gas path for many years. As of late, the loss had been as high as 50 gallons per day. This amount of oil caused problems for the downstream equipment with coking deposits and fouling. The source of the lost oil was suspected to be the process seal, a bushing type, which could allow a large amount of seal oil to pass on to the process side on a regular basis. RMS suggested a face type mechanical oil seal which could potentially reduce the leakage by ten times and the customer agreed.

It was noted that the compressor casing had been in place for about fifty years with only routine maintenance, so RMS did a complete teardown, blast clean and paint job. The compressor's o-rings, gaskets, labyrinth seals and fasteners were replaced. The suggested rotor repairs were performed: a new main shaft was provided, and impellers were re-bored and treated with an anti-corrosion coating. As a part of the seal upgrade, a Rotordynamic analysis was performed which confirmed the rotor's stability and predicted long term reliable service at design conditions.

RMS precision balanced the rotor to API 687 standards and fully assembled the compressor and then readied it for its trip back to the utility. The compressor was reinstalled by RMS Field Service personnel who had supervised its removal from site, ensuring that the compressor was exactly and efficiently positioned as before.

The unit is currently running providing pressure boost for the winter months. The customer graciously remarked that the compressor vibration readings were the lowest they had ever seen and that they appreciate everything RMS did and its attention to detail. High praise indeed, but RMS approaches all customers and projects with the same philosophy - "Quality from start to finish".

For more information:

Email: RMS@rotatingmachinery.com

Tel: 484-821-0702

Headquarters

2760 Baglyos Cir.
Bethlehem, PA 18020

Houston Office

16676 Northchase Dr., Ste 400
Houston, TX 77060

rotatingmachinery.com

Tel: 484-821-0702

Parts: rms@rotatingmachinery.com



Rotating Machinery Services, Inc. | 2760 Baglyos Circle, Bethlehem, PA 18020 | Tel: 484-821-0702