

# RMS MANUFACTURES REPLACEMENT VANE CARRIER

*By Tony Rubino*

RMS has completed the manufacture, assembly and installation of a Sulzer AC-12-53 axial compressor stator vane carrier. The compressor features a “casing within a casing” design where the outer casing is the pressure vessel and the inner casing (i.e., stator vane carrier) contains the assembled flow path stationary components. Use of a vane carrier can reduce turnaround time since all of the flow path components can be swapped by changing two major units: the vane carrier and the rotor.

installed the vanes into the carrier at RMS’ Bethlehem facility. The vane carrier was fit verified to the rotor in the shop using a special fixture and arbor to ensure fault free assembly in the field. The vane carrier was manufactured with machining allowance at the inlet and discharge outer casing fit locations since the fit dimensions were not known. RMS included additional machining allowance at the fits to accommodate modifications to the outer casing to correct for material loss due to corrosion and other damage that has occurred over time.

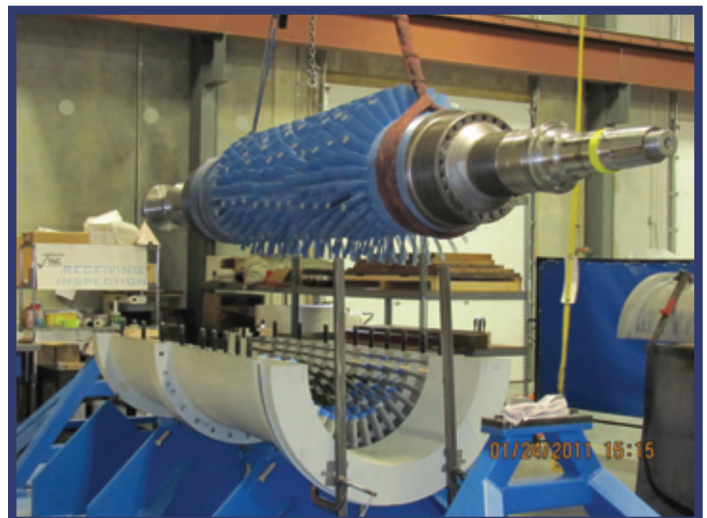
The vane carrier was installed during the turnaround using the RMS provided arbor and engineering supervision. The outer casing was found to need significant rework at not only the fits but to also correct misalignment at the seal boxes. While the outer casing was reworked, the vane carrier fits were final-machined. The vane carrier was installed into the outer casing without incident and all clearances were within specification. The refinery process has not yet been brought to full rate but preliminary indications are that design flow has been reestablished.

Since the refinery operator’s spares were used in building the compressor during the turnaround, RMS manufactured replacement blades, vanes and spacers.



Due to a process upset, the customer’s vane carrier had become distorted and airfoil tip clearances had to be increased to permit compressor assembly. The loss in compressor capacity due to the increased tip clearance and airfoil damage was estimated to be approximately 6%.

RMS manufactured a replacement vane carrier and



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