CASE STUDY

VACUUM PUMPS FOR HYDROGEN COOLED GENERATORS

POWER STATIONS

The generator is cooled with a hydrogen gas recirculation system using fans mounted on the generator rotor shaft. The heat absorbed by the gas is removed as it passes over finned tube gas coolers mounted in the stator frame. Gas is prevented from escaping at the rotor shafts by a closedloop oil seal system. The oil seal system consists of a storage tank, pumps, filters, and pressure controls, all skid mounted. Kinney Rotary Piston Vacuum pumps have been running for years in the hydrogen seal oil application in power stations.

CLOSED-LOOP OIL SEAL SYSTEM

The vacuum pump is drawing air, water vapor and hydrogen gas from the seal oil tank. Only Kinney specially formulated vacuum pump oils (AX or KU100) should be used as a sealing liquid.

CROSS REFERENCE FOR BEACH-RUSS VACUUM PUMPS

<table>
<thead>
<tr>
<th>Kinney Model</th>
<th>CFM</th>
<th>Beach-Russ Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>KD 30</td>
<td>33</td>
<td>RP15</td>
</tr>
<tr>
<td>KD 50</td>
<td>52</td>
<td>RP30</td>
</tr>
<tr>
<td>KDH 130</td>
<td>80</td>
<td>RP50</td>
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</tbody>
</table>

VACUUM PUMPS SOLUTIONS

Since approved by GE back in 1950’s, there has been a large population of Beach-Russ vacuum pumps in this market. Recently we have received feedback from the market that Beach-Russ is not able to supply the parts or pumps needed for these existing users.

Kinney KD 30 & KD 50 are the ideal pumps for the hydrogen seal oil vacuum systems. We are currently supplying our KD 50 direct drive rotary piston vacuum pumps to GE for this application.
ADVANTAGES OF ROTARY PISTON VACUUM PUMPS

- Single-stage rugged rotary piston design
- Water vapor tolerance without affecting pump performance
- Gas ballast valve prevents condensation inside the pumping chamber
- High resistance to abrasion and corrosion due to QPQ treatment
- Integral oil mist eliminator
- Low RPM air-cooled design
- Nationwide sales and technical support
- Quick delivery and parts availability
- Manufactured at our plant in Springfield, Missouri USA
- Installations across North America

Belt Drive

Direct Drive

Gear Drive

Dimensions of KD Rotary Piston Vacuum Pump Series