ATTACHMENT 488
COMPRESSORS GRAPHICAL PRESENTATION
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COGEN FOR AFRICA PROJECT
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Table of Contents
1 Compressors ........................................................................................................................................... 3
   1.1 Types of Compressors ....................................................................................................................... 3
2 Rotary air compressor ............................................................................................................................. 4
3 Reciprocating Compressors .................................................................................................................. 6
4 Axial flow compressor ............................................................................................................................ 9
5 Centrifugal air compressors ................................................................................................................... 10

List of figures
Cutaway of a rotary air compressor ........................................................................................................ 4
Parts list ..................................................................................................................................................... 4
Quincy air compressor ............................................................................................................................. 5
Reciprocating compressor ......................................................................................................................... 6
Quincy reciprocating compressor ............................................................................................................ 7
Parts of a reciprocating compressor ......................................................................................................... 7
Parts list ..................................................................................................................................................... 8
Axial flow compressor ................................................................................................................................ 9
Axial flow compressor test rig ................................................................................................................ 9
Centrifugal compressor ............................................................................................................................. 10
SRL Centrifugal air compressor ............................................................................................................... 10
Ingersol Rand Centrifugal compressor .................................................................................................... 11
1 Compressors
A compressor is a mechanical device that increases the pressure of a gas by reducing its volume. Compressors are similar to pumps: both increase the pressure on a fluid and both can transport the fluid through a pipe. As gases are compressible, the compressor also reduces the volume of a gas. Liquids are relatively incompressible; while some can be compressed, the main action of a pump is to pressurize and transport liquids.

1.1 Types of Compressors
- Rotary air compressors
- Reciprocating compressors
- Axial flow compressors
- Centrifugal air compressor
2 Rotary air compressor

Figure 1: Cutaway of a rotary air compressor

Figure 2: Parts list
Figure 3: Quincy air compressor
3 Reciprocating Compressors

D-Style Vertical Gas Compressor (Reciprocating)

The self-lubricating piston rings are a step-cut design that provides higher efficiencies during throughout the life of the piston ring.

Packing cartridge houses V-ring packing and oil deflector ring.

Adjustable packing screws ensures maximum sealing capacity throughout the life of the packing.

Impregnated nitride coating provides superior corrosion and wear resistance.

Pressure-lubricated crankcase with filter keeps the internals well lubricated at all times and minimizes premature wear (not available on model 91).

Water cooling jackets for head and cylinder.

Upper packing (V-ring)

Water cooling jacket for packing.

Single distance piece/barrier has its own line connections and can be pressurized, purged or vented.

Oil deflector ring deflects any oil that passes the first set of packing.

Lower packing (V-ring)

Durable cast-iron crossheads provide superior resistance to corrosion and galling.

NOTE: A D-Style compressor has two sets of packing and a single distance piece.

Figure 4: Reciprocating compressor
Figure 5: Quincy reciprocating compressor

Figure 6: Parts of a reciprocating compressor
<table>
<thead>
<tr>
<th>Item Number</th>
<th>Parts Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>IAT-ET20M21T2BB28</td>
<td>Automatic Tank Drain (Platinum only)</td>
</tr>
<tr>
<td>B</td>
<td>IAT-CTB3/4X3/4</td>
<td>Check valve</td>
</tr>
<tr>
<td>C</td>
<td>IAT-3353102-D</td>
<td>Low Oil monitor (Platinum only)</td>
</tr>
<tr>
<td>D</td>
<td>IAT-G43</td>
<td>Compressor pump</td>
</tr>
<tr>
<td>E</td>
<td>IAT-14</td>
<td>Air intake filter (2 required)</td>
</tr>
<tr>
<td>F</td>
<td>IAT-T116-16FJ-35</td>
<td>Compressor pump discharge line</td>
</tr>
<tr>
<td>G</td>
<td>IAT-M-20AL</td>
<td>Belt guard after cooler (Platinum only)</td>
</tr>
<tr>
<td>H</td>
<td>IAT-ST25-200</td>
<td>Discharge safety valve</td>
</tr>
<tr>
<td>I</td>
<td>IAT-B76</td>
<td>Belts</td>
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<tr>
<td>J</td>
<td>IAT-BG8X30X48</td>
<td>Belt guard</td>
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<td>K</td>
<td>IAT-3B64SD</td>
<td>Electric motor pulley</td>
</tr>
<tr>
<td>L</td>
<td>IAT-5D1-5/8</td>
<td>Motor pulley hub</td>
</tr>
<tr>
<td>M</td>
<td>IAT-M2513T</td>
<td>Electric motor</td>
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<td>N</td>
<td>IAT-LF10-1H2</td>
<td>Pressure switch</td>
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<td>O</td>
<td>IAT-8911DPSG53V09</td>
<td>Magnetic starter</td>
</tr>
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<td>P</td>
<td>Horizontal 120 gallon IAT-300561</td>
<td>Compressor tank</td>
</tr>
<tr>
<td>Q</td>
<td>IAT-PSB20</td>
<td>Pressure gauge</td>
</tr>
</tbody>
</table>

*Figure 7: Parts list*
4 Axial flow compressor

Figure 8: Axial flow compressor

Figure 9: Axial flow compressor test rig
5 Centrifugal air compressors

Figure 10: Centrifugal compressor

Figure 11: SRL Centrifugal air compressor
Figure 12: Ingersol Rand Centrifugal compressor