DECOKING CONTROL VALVE
Long Legacy of Service to the Refining Industry

In 1803, less than a decade after Joseph Bramah ushered in the era of modern hydraulics by patenting the first hydrostatic press, the R.D. Wood & Griffin Pipe Companies were established, manufacturing water valves and pipes. In 1851, the Charles Elmes Engineering Works was established and later became the Elmes Press & Valve Company to manufacture water calves, systems, and presses. These two companies existed independently until the early 1960’s when they were purchased by the Nordberg Heavy Machinery Group of Milwaukee. In 1972, Rex Chainbelt bought the Nordberg Heavy Machinery Group, changing the name of the company to Rexnord. In 1983, Elwood purchased the Hydraulic Products division of Rexnord and formed the Fluid Power Group of Elwood.

The R.D. Wood and Nordberg decoking product lines that came with this purchase from Rexnord has a long history of service to the refining Industry that dates back to 1938 with the sale of the first decoking unit to Shell Petroleum Corporation in Wood River, Illinois. Since that time, the list has grown to include a worldwide base of customers.

Companies

Ameriven
Asiatic Petroleum
Atlantic Richfield
Bongaigaon
Canadian Natural Resources Ltd.
Chevron Oil
Chevron Texaco
Citgo
Cities Service
Clark Oil and Refining
Coastal States Petrochemical
Conoco Phillips
Continental Oil
Crown Central Petroleum
Exxon
Frontier Refining
Gelsenberg Benzin, AG
General Petroleum
Gulf Oil
Hyundai Oilbank
Imperial Oil
Koch Refining
Magnolia Petroleum
Marathon Oil
Mitsubishi Kasei
Mobil Oil
Motiva Enterprises
Numaligarh
Ohio Oil Company
Pasadena Refining
Pertamina
Petrobras
Pure Oil
Shell Compania
Shell Petroleum
Sinclair Refining
Skelly Oil
Socony Vacuum Oil
Standard Oil
Suncor
Union Oil
Union Pacific
Valero

Countries

Argentina
Brazil
Canada
Chile
Germany
India
Indonesia
Japan
Russia
South Korea
Spain
United States
Venezuela

Decoking Valve Technical Data

<table>
<thead>
<tr>
<th>Maximum Flow Rate</th>
<th>Operating Pressure</th>
<th>Sealing Material</th>
<th>Sealing Material</th>
<th>Internal Material (High Pressure Area)</th>
<th>Other Data</th>
<th>Particulate to Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Valve</td>
<td>6&quot; x 3&quot;</td>
<td>8&quot; x 3&quot;</td>
<td>Stainless Steel, Resilon, &amp; Viton</td>
<td>Stainless Steel</td>
<td>Largest Diameter</td>
<td>5 mm</td>
</tr>
<tr>
<td></td>
<td>2,000 GPM</td>
<td>2,500 lb.</td>
<td>Flange</td>
<td>Body Material</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7,600 LPM</td>
<td>Ring Type Joint</td>
<td>Flange</td>
<td>Stainless Steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bypass Valve</td>
<td>6&quot; x 3&quot;</td>
<td></td>
<td>Stainless Steel, Resilon, &amp; Viton</td>
<td>Stainless Steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,000 GPM</td>
<td>300 lb.</td>
<td>Flange</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7,600 LPM</td>
<td>Raised Face</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Temperature</td>
<td>90 °C / 194 °F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>6,000 PSI / 420 bar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The integrated orifice design provides a compact and easy to maintain reliable pressure reducing element in the decoking valve product. The single sleeved design provides superior performance over the stacked plate designs by eliminating multiple sealing areas.

Advantages of this design include:

- Easily serviced by removing 4 bolts and cap located on the bypass valve
- Non-clogging design
- High reliability
- Optional differential pressure transducer wear on the orifice packs can be monitored to allow servicing during a planned maintenance.

Easy Service: Remove four bolts and cap

Other advantages of directly linking the CAM and spindle include:

- Elimination of valve chatter during operation
- No external pilot valves required
- No external air supply required to operate air cylinders
- Positive pre-fill positioning
- Direct coupling to motor and gearbox provides capability to reverse valve direction from pre-fill back to bypass.
- Mechanical position control protects the pump from both valves open or both valves closed at the same time.
Spindle Design

At the heart of the decoking valve is the balanced spindle technology used to control the flow of fluid. This design has a proven track record with over 100 worldwide installations going back to the first decoking valve shipped in 1938.

Over the years, we have responded to the needs of our customers to increase the pressure and flow requirements of the decoking valve. These requirements have been the catalyst for several innovations and enhancements to the basic spindle design.

Shield Seat Design

The contour of the spindle above and below the composite disc is used to meter flow, controlling the effects of high fluid velocities. When the spindle is opening, the gap between the seat and the disc accelerates faster than the gap between the spindle and bores, minimizing the effects of high velocity fluids acting on the seat and disc. This innovation provides superior valve life.

Hard Seating Material

Decoking units have hard seating materials to ensure drop tight sealing with long life.

Maintenance

Spindle design consists of 5 components that can be easily serviced without moving the valve unit or disconnecting the piping.
Innovative Product Enhancements

The original R.D. Wood and later Nordberg Decoking Valve was specifically designed and built to meet the demanding requirements of the refining industry. Technical and design enhancements have been implemented based on our long history and valued partnerships with our customers.

Front View

- Flange connections integrated into valve bodies.
- Main and Bypass Valves have Common Input Port
- Motor Driven Cams Mechanically Linked to Spindle

Rear View


Other Innovations:
- Safety Interlock
- Improved Spindle Design with Hard Seat
Elwood Fluid Power is proud to provide high pressure hydraulic valves and systems for water and other low viscosity applications. Traditionally, Elwood custom valves have been used in steel mills, aluminum mills, and petrochemical facilities across the world.

Today Elwood is expanding its markets into custom high pressure water or low viscosity applications across many industries. Contact us today to start talking with our team!

Water and Low Viscosity Hydraulics

2-, 3- & 4-Way Directional Control Valves
As one of the most fundamental components in hydraulic and pneumatic machinery, directional control valves are responsible for stopping, allowing, and changing direction of fluid flow from one or multiple sources.

Packed Spool 4-Way Directional Control Valves
Deliver precise valve control through air actuated function.

Pressure Control Valves
Named for their primary function, pressure control valves provide relief, reduce, or stop system pressure.

Isolation Valves
Utilize system maintenance with the ISO-Lock valve by isolating manifold mounted directional control valves without shutting the entire system down.

2-Way Valves
• Descaling applications
• Pump unloading & bypass applications
• Stopping applications

Accumulator System Shut-Off Valves
As system pressure builds, this safety valve shuts off pressure when determined levels are reached.

Decoking Control Valves
Assisting the refinery industry since the late 1930's, Elwood's decoking control valves have come a long way. Support provided is for older Nordberg and Rexnord valves. Newer designs feature additional beneficial characteristics. Available in spindle and cartridge designs, customized to fit your needs.

Valve Stands & Manifolds