Process Technology
for the Petroleum Industry

- New ways to mix Hydraulic Fracturing Fluids
- Preparation of Drilling Fluids
Faster Hydration and Higher Concentrations

- Guar
- Polyacrylamide Based Polymers
- Xanthan Gum

Features of the SLT Powder Hydration Mixer

- High Powder Concentrations
- Faster Hydration Rates
- Enhanced Quality of Gels
- Reduced Equipment Profile
- Electric or Hydraulic Drive

Hydrate Faster and Reduce Equipment Size

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. Flow</th>
<th>Flow max diss.</th>
<th>Solids Feed Rates @ max diss. rate</th>
<th>Connections</th>
<th>Nom. Speed</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLT 2000/10</td>
<td>30</td>
<td>20</td>
<td>2.5</td>
<td>12</td>
<td>14</td>
<td>2.5/2/2</td>
</tr>
<tr>
<td>SLT 2000/20</td>
<td>100</td>
<td>60</td>
<td>8</td>
<td>40</td>
<td>45</td>
<td>3/2/2.5</td>
</tr>
<tr>
<td>SLT 2000/30</td>
<td>200</td>
<td>120</td>
<td>16</td>
<td>85</td>
<td>90</td>
<td>6/3/4</td>
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<tr>
<td>SLT 2000/40</td>
<td>400</td>
<td>250</td>
<td>32</td>
<td>170</td>
<td>190</td>
<td>6/3/4</td>
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<tr>
<td>SLT 2000/50</td>
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<td>375</td>
<td>48</td>
<td>260</td>
<td>290</td>
<td>8/4/6</td>
</tr>
</tbody>
</table>

* Higher feed rates can be achieved with the addition of pumps and a powder feeding device.
**IKA® In-Line Dispax Reactor For Preparation of Drilling Fluids**

**Advantages:**

- Production of Drilling Fluids (Mud) for Petroleum Oil/Gas
- Designed for One pass hydration/emulsion of Drilling Fluid Mud
- Can also be utilized in a recirculation mode in conjunction with a vessel
- Progressive dispersion through three stages.
- Typical drilling fluids such as lime and bentonite clay, barite, polymers, etc.
- Improved Emulsion and Electrical Stability and performance in less passes.
- Rugged machine design with intermeshing teeth.
- Better wear resistance and reliability
- Controls target viscosity and particle size
- Superior flow behavior control

**Description:**

IKA High shear mixers and mills are excellent for the preparation of drilling fluids, also referred to as “muds”. These mixtures often involve the wet-out or hydration of clays, polymers, barite or other dry additives into water or oil based emulsions. The efficient mixing is necessary to ensure the mud maintains a low viscosity and remains stable during lubrication of the drill bit. Meanwhile it forms a consistent gel to impede the hydrostatic pressure and drill cuttings to re-enter the bore.

**Table:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal Flow Rate</th>
<th>Output</th>
<th>Nominal Tip Speed</th>
<th>Power</th>
<th>Inlet / Outlet Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>gpm</td>
<td>l/h</td>
<td>rpm</td>
<td>fpm</td>
<td>m/s</td>
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<tr>
<td>DR 2000/4</td>
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<td>5,800</td>
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<td>23</td>
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<tr>
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<td>35</td>
<td>8,000</td>
<td>4,200</td>
<td>4,500</td>
<td>23</td>
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<tr>
<td>DR 2000/20</td>
<td>90</td>
<td>20,000</td>
<td>3,000</td>
<td>4,500</td>
<td>23</td>
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<td>175</td>
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<tr>
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<td>70,000</td>
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<td>4,500</td>
<td>23</td>
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<tr>
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<td>550</td>
<td>125,000</td>
<td>1,100</td>
<td>4,500</td>
<td>23</td>
</tr>
</tbody>
</table>

* Flow rates can be +/- 25% depending on fluid properties and auxiliary pumping. Consult IKA® for recommendation.
Example Mixing Applications

• Hydraulic Fracturing Fluids Hydration/Dispersions
• Drilling Fluid Emulsions (Mud)
• Petroleum and Synthetic Fuel Emulsions and Bio-blends
• Shearing of polymer; Polyacrylamide for Enhanced Oil recovery in waste water streams/fracking process.
• Asphalt Emulsions & Polymer Incorporation
• Petroleum-based Lubricants/Greases
• Crude Oil Refining via High Shear Mixing
• Fuel Additives and Blends
• Catalyst Addition/Dispersion for Petroleum
• Cracking and HVGO Oil Dispersion
• High Shear Batch and Inline High Temperature Pressure Reactions
• Wet-milling coal/solvent slurry as feed-stock for fuels or coal liquefaction.

Stand-Alone machines and complete turn-key systems offered