In 2010, when new diesel-emission standards for Class 4-8 vehicles mandated its use in the USA, Diesel Exhaust Fluid (DEF) was called “the largest addition to the motor-vehicle liquids marketplace in decades.” Subsequent years have borne out the veracity of that statement with consumption growing geometrically and significant growth forecasted for the future.

To meet this demand, thousands of truck stops, truck dealers and aftermarket parts stores are offering DEF. Pumps are needed to facilitate the transfer of DEF into on-site storage vessels, or from those vessels into the DEF tanks of fleet trucks and these pumps must be compatible with DEF’s unique properties to avoid contamination issues.

Recognizing both the opportunities and challenges inherent in the DEF marketplace, Blackmer® has produced a series of sliding vane-style pumps that are dedicated for DEF production and handling.

**Features & Benefits**

The SX1-DEF pumps offer the following operational features and benefits when dispensing DEF from various sized totes:

- Maximum flow rate: 10 gpm (37.9 L/min)
- Maximum differential pressure: 25 psi (1.7 bar)
- Motor speed: 1,750 rpm
- All 316 stainless-steel construction, including pump shaft
- Duravanes®
- EPDM O-rings
- Commercial mechanical seal
- 180° porting with optional 1” NPT or 1” BSPP tapped ports
- Optional foot-mounted, 0.5-horsepower TENV, C-face close-coupled 12-volt or 110-volt motor
- Integral relief valve with stainless-steel spring
- Meets ISO 22241-3 certification for material compatibility

The features and benefits make the SX1-DEF pump a superior solution to low-cost, short-service “throwaway” pumps, which utilize inadequate designs and, in many cases, are constructed of cheaper plastic materials. These competitive models just can’t compete with the design, reliability, durability and overall performance of the Blackmer SX1-DEF Series Sliding Vane Pump.
**SX1-DEF Series**
Sliding Vane Pumps

### Characteristic Flow Rates

<table>
<thead>
<tr>
<th>Pump Model</th>
<th>Pump Speed (rpm)</th>
<th>US gpm</th>
<th>L/min</th>
<th>m³/h</th>
<th>ssu</th>
<th>cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX1-DEF</td>
<td>1750</td>
<td>8.5</td>
<td>32.2</td>
<td>1.93</td>
<td>30</td>
<td>2.0</td>
</tr>
</tbody>
</table>

### Maximum Operating Limits

<table>
<thead>
<tr>
<th>Pump Model</th>
<th>Nominal Flow Rate US gpm</th>
<th>Pump Speed rpm</th>
<th>Viscosity ssu</th>
<th>Differential Pressure psi bar</th>
<th>Temperature °F °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX1-DEF</td>
<td>7.5</td>
<td>1750</td>
<td>30</td>
<td>2.0</td>
<td>80 32</td>
</tr>
</tbody>
</table>

### Motor Descriptions

**12-Volt**
- Frame: 56C
- Phase: —
- HP: 1/2
- Freq: —
- Volts: 12 DC
- Encl: TENV

**110-Volt**
- Frame: 56CZ
- Phase: 1 PH
- HP: 1/2
- Freq: 60 HZ
- Volts: 115 AC
- Encl: TENV

### Pump Dimensions

<table>
<thead>
<tr>
<th>Pump Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>H2</th>
<th>J</th>
<th>K</th>
<th>M</th>
<th>N</th>
<th>P</th>
<th>R</th>
<th>S</th>
<th>Pump Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX1-DEF 12-Volt</td>
<td>in.</td>
<td>7%</td>
<td>11%</td>
<td>6%</td>
<td>4%</td>
<td>4%</td>
<td>3</td>
<td>1%</td>
<td>4%</td>
<td>6%</td>
<td>6%</td>
<td>%</td>
<td>5%</td>
<td>6%</td>
<td>1%</td>
<td>27 lbs,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>181.0</td>
<td>303.2</td>
<td>171.5</td>
<td>103.2</td>
<td>123.8</td>
<td>76.2</td>
<td>17.5</td>
<td>11.1</td>
<td>14.3</td>
<td>106.4</td>
<td>158.8</td>
<td>160.3</td>
<td>7.9</td>
<td>136.5</td>
<td>174.6</td>
<td>46.0</td>
</tr>
<tr>
<td>SX1-DEF 110-Volt</td>
<td>in.</td>
<td>7%</td>
<td>11%</td>
<td>8%</td>
<td>3%</td>
<td>4%</td>
<td>3</td>
<td>1%</td>
<td>4%</td>
<td>6%</td>
<td>6%</td>
<td>%</td>
<td>5%</td>
<td>6%</td>
<td>1%</td>
<td>36 lbs.</td>
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</tr>
<tr>
<td></td>
<td>mm</td>
<td>185.7</td>
<td>300.0</td>
<td>217.5</td>
<td>98.4</td>
<td>123.8</td>
<td>76.2</td>
<td>20.6</td>
<td>8.7</td>
<td>22.2</td>
<td>104.8</td>
<td>165.1</td>
<td>160.3</td>
<td>3.2</td>
<td>136.5</td>
<td>174.6</td>
<td>46.0</td>
</tr>
</tbody>
</table>

[Image of pump diagrams]