Message from Management

We began operation in 1988 as a manufacturer of components & auxiliary equipment for diesel engines. We have supplied cylinder lubricators for diesel engines to customers like MAN Diesel, Hyundai Heavy Industries, Doosan Engine, and STX Metal for over 20 years.

Our products have been meticulously designed & manufactured to fulfill customer requirements. SHP components are innovative, reliable, and competitive and our staff is dedicated to excellent customer service.

During these years SHP achieved successful domestic production of the Starting Motor, Centrifugal Oil Cleaner & the Purifier, all of which are environment-friendly. Our company’s employees take great pride in combining responsibility and creativity with clear goals.

SHP’s vision is to be a "Global Leader" and we strive to give the greatest value to every client.
History

1988. 3  Establishment
1991. 11 Started developing MAN type Mechanical Lubricator
2001. 8  Acquired Certification for Institute of Technology
2002. 4  Acquired Certification for Venture Business
2002. 12 Succeeded in domestically producing complete MAN type ALPHA Electronically controlled Lubricator
2003. 12 Acquired Certification for ISO 9001
2006. 9  Moved to present location
2007. 1  Acquired Certification of INNOBIZ
2007. 4  Succeeded in domestically producing complete Air Starter for medium speed diesel engines
2008. 4  Extension of 2nd factory building
2009. 7  Acquired Air Starter ABS TYPE APPROVAL
2010. 8  Succeeded in domestically producing Centrifugal Filter
2010. 9  Acquired Government Confirmation Documents for professional company for components / materials
2011. 11 Participated in 2011 Kormarine Exhibition, Korea
2012. 11 Participated in 2012 Sea Japan, M&E, MINE Expo
2013. 11 Participated in 2013 Kormarine, Marintec
2014. 8  Participated in APM, SMM, ADIPEC
2014. 10 Succeeded in domestically producing Centrifugal Purifier system
2015. 6  Participated in Nor-Shipping
2015. 10  IME
2015. 10  Kormarine
2015. 12  Marintec
Philosophy

1. Professional customer-orientated company producing components & auxiliary equipment for Diesel Engines.
2. Upgrade product quality through independent & continuous technical development.
3. To engender customer satisfaction & trust via exemplary products & services.

Aims for our products

2. Excellent characteristics & reliability.
3. Manufacturing of various environment-friendly products suitable for all engine types.
4. Constant product development in conjunction with customer feedback.
5. Competitive price.

Certificates
Contents

1. CP (Centrifugal Oil Cleaner)
2. GP (Green Purifier) system
3. Starting Motor
4. Mechanical Cylinder Lubricator
5. Lubricator
6. ALPHA Cylinder Lubricator
Centrifugal Oil Cleaner

Operation

Benefits

- Extends lube and engine or component life.
- Wear of engine components caused by Iron / Silicon contamination is reduced by up to 70%.
- Cleaning interval of 500 hrs: filter insert is serviced.
- Centrifugal Oil Cleaner can be operated on a 24 hours basis.
- Substantial cost-savings on equipment and maintenance expenses.
- Break Even Point is rapid: payback on installed cost is usually less than 6 months.
- Application: Medium-speed 4-stroke diesel engine, Heavy duty truck, Bus, Mining, Compressors, Construction, Crusher, Copper Clad / Laminate, Paper Mill, Hydraulic Unit, Screw Maker, EDM (Electrical Discharge Machining), Steel Plant, Cement Mill, Heat Treatment, Thermal power Plant, Petrochemical Plant, Sugar Plant, Aluminum Extrusion, etc.
Specifications

Model CP200

<table>
<thead>
<tr>
<th>Model</th>
<th>Engine Lube Oil Capacity</th>
<th>Rotor Dirt Capacity</th>
<th>Rotor Oil Capacity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP200-11</td>
<td>40l-170l</td>
<td>2.1l</td>
<td>2.4l</td>
<td>8kg</td>
</tr>
<tr>
<td>CP200-21</td>
<td>40l-170l</td>
<td>2.1l</td>
<td>2.4l</td>
<td>8kg</td>
</tr>
</tbody>
</table>

Model CP400

<table>
<thead>
<tr>
<th>Model</th>
<th>Engine Lube Oil Capacity</th>
<th>Rotor Dirt Capacity</th>
<th>Rotor Oil Capacity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP400-13</td>
<td>200l-1,500l</td>
<td>4.0l</td>
<td>4.5l</td>
<td>22kg</td>
</tr>
<tr>
<td>CP400-23</td>
<td>200l-1,500l</td>
<td>4.0l</td>
<td>4.5l</td>
<td>22kg</td>
</tr>
</tbody>
</table>

Oil pressure set point: 4.5 bar

Market Leader - Rotor Speed (rev/min)

Model Leader sludge weight 597.97g

CP200 - Flow Rate

CP200 - Rotor Speed (rev/min)

Market Leader - Flow Rate

CP200 sludge weight 810.55g

135%

SHIN HEUNG PRECISION CO., LTD

www.atlastech.co.kr
Specifications

Model CP600

<table>
<thead>
<tr>
<th>Model</th>
<th>Engine Lube Oil Sump Capacity</th>
<th>Rotor Dirt Capacity</th>
<th>Rotor Oil Capacity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP600-13 (flange mount)</td>
<td>200l–1,500l</td>
<td>6.33l</td>
<td>6.8l</td>
<td>25kg</td>
</tr>
<tr>
<td>CP600-23 (base mount)</td>
<td>200l–1,500l</td>
<td>6.33l</td>
<td>6.8l</td>
<td>25kg</td>
</tr>
</tbody>
</table>

**OTB (Oil Transfer Base)**

1. The Oil Transfer Base, OTB is an addition to the pressure-powered centrifuge which allows remote positioning of the centrifuge, as opposed to confining it to a gravity drained oil return method.

2. For a fixed inlet pressure, any reduction in maximum pressure drop will reduce the turbine speed.
   Use of the OTB increases the air pressure surrounding the rotating turbine, thus reducing the pressure drop.
   In addition to the OTB itself, all downstream components and conditions will also affect the maximum pressure drop.

3. The OTB also replaces air inside the operating volume around the rotating turbine entrained by the force of oil spray as the liquid rapidly escapes the nozzle exits. This air must be replaced or the pressure of the air volume around the turbine will gradually decrease from atmospheric to vacuum levels, and flow away the centrifuge will be hindered.
Centrifuge Installations

Clean Rotor tube & Sludge
Portable Centrifugal Oil Cleaner

Portable Centrifugal Oil Cleaner is easy to install in various industrial application fields.
Diagram of PCC

Pressurised Delivery (PCC-602)

Gravity Drain (PCC-201)

Application

... Application oil

- Hydraulic fluid
- Lubricant oil
- Gear oil
- Compressor oil
- Rolling oil
- Heat treatment oil
- Electrical insulating oil
- Cutting oil
- Internal combustion engine oil
- Electrical discharge processing oil

... Application field

- Crusher
- Copper Clad Laminate
- CNC/Grinding
- Paper Mill
- Hydraulic System
- Screw Maker
- Heat Treatment
- Thermal Power Plant
- Petrochemical Plant
- Steel Plant
- Electronics Industry
- Cement Plant
- Sugar Plant
- Aluminum Extrusion
- EDM
Centrifugal Purifier System

The Purifier System is designed to clean oil and separate free and dissolved water. Applications include HFO / Bunker-C, MDO / Bunker-B and many Lube oils.

1. The dirt capacity of rotor is very large: cleaning interval - once every 25 days (marine engine).
2. Simple structure and easy maintenance decrease routine maintenance.
3. SHP Purifier does not require sealing water and operates more efficiently.
4. Maintains water content below 0.2%.

Advantages

- Multiple installation of GP1200 for large sizes

### Specification of Purifier System

<table>
<thead>
<tr>
<th>Model</th>
<th>Maximum Flow Rate (SAE 40, 65℃, 7 bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP200</td>
<td>1,140 lph</td>
</tr>
<tr>
<td>GP600</td>
<td>4,800 lph</td>
</tr>
<tr>
<td>GP1200</td>
<td>9,600 lph</td>
</tr>
<tr>
<td>GP2400</td>
<td>19,200 lph</td>
</tr>
<tr>
<td>GP3600</td>
<td>28,800 lph</td>
</tr>
<tr>
<td>GP4800</td>
<td>38,400 lph</td>
</tr>
<tr>
<td>GP6000</td>
<td>48,000 lph</td>
</tr>
</tbody>
</table>

Application

- Fuel (HFO, MDO), System / Lubricating System / Hydraulic System / Gear oil System.
- Marine / Off-shore / Power Plant / Paper mill / Steel / Wind Power Industry etc.
The Purifier System is designed to clean oil and separate free and dissolved water. Applications include HFO/Bunker-C, MDO/Bunker-B and many Lube oils.

**Operation Process**

**Gas Line System**
Separates water from emulsified oil.

**Oil Line System**
Removes sludge & fine particle with CP.

---

**Diagram:**
- Oil Line System
- Gas Line System
- Oil, Oil mist + Vapor, Water (condensed vapor), Oil mist.

---

Oil Line
Gas Line
Fine Sludge Elimination

Sludge less than 4μm Removal Efficiency

Improvement of NAS grade

Changes of NAS Grade & Water Elimination

Test Condition

<table>
<thead>
<tr>
<th>Test Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Oil</td>
</tr>
<tr>
<td>Oil Viscosity</td>
</tr>
<tr>
<td>Oil Capacity</td>
</tr>
<tr>
<td>Flow rate</td>
</tr>
<tr>
<td>Oil Temp</td>
</tr>
<tr>
<td>Supply Pressure</td>
</tr>
<tr>
<td>RPM</td>
</tr>
<tr>
<td>Sludge Content</td>
</tr>
</tbody>
</table>

ISO 4406(1999)

<table>
<thead>
<tr>
<th>ISO 4406(1999)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R4</td>
</tr>
<tr>
<td>14</td>
</tr>
</tbody>
</table>
Certificate from Korea Polymer Testing & Research Institute

4. 분석결과
4-1. 수분함량

표1. 수분함량 분석 결과

<table>
<thead>
<tr>
<th>시료명 (Sample name)</th>
<th>수분함량 (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koptri-1561945-3</td>
<td>119</td>
</tr>
</tbody>
</table>

4-2. 오염도

표2-1. 오염도 분석 결과-입자오염도 등급

<table>
<thead>
<tr>
<th>시료명 (Sample name)</th>
<th>ISO 4406 (1999)</th>
<th>NAS 1638</th>
<th>SAE AS 4059</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koptri-1561945-1</td>
<td>R4   14</td>
<td>R6   13</td>
<td>R14  9</td>
</tr>
</tbody>
</table>

표2-2. 오염도 분석 결과-입자크기별(㎛), 개수/(1000mL)

<table>
<thead>
<tr>
<th>시료명 (Sample name)</th>
<th>항목</th>
<th>A  5~15㎛</th>
<th>B  15~25㎛</th>
<th>C  25~50㎛</th>
<th>D  50~100㎛</th>
<th>E  &gt;100㎛</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koptri-1561945-3</td>
<td>개수</td>
<td>5150</td>
<td>310</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

표2-3. 오염도 분석 결과-입자크기별(㎛), 개수/(1mL)

<table>
<thead>
<tr>
<th>시료명 (Sample name)</th>
<th>항목</th>
<th>A  &gt;4㎛</th>
<th>B  &gt;6㎛</th>
<th>C  &gt;14㎛</th>
<th>D  &gt;21㎛</th>
<th>E  &gt;38㎛</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koptri-1561945-3</td>
<td>개수</td>
<td>130</td>
<td>45</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- SAE AS 4059 규격에 준함
Starting Motor

Model: SM07P

Model: SM07Y

Model: SM10

Model: SM12
Specification

The turbine starting motor provides for engine cranking by using the power of compressed air. It is a cost-saving, safe, reliable, environment-friendly and efficient device. Starting Motor is capable of operating in the most extreme conditions and environments.

▶ Left or right-hand rotation.
▶ A wide variety of gear reductions, nozzles and pinions.
▶ 2.7- 10.3 bar
▶ Application; medium-speed diesel engines, Oil & Gas, Haul truck, Mining Industry etc.

<table>
<thead>
<tr>
<th>Model</th>
<th>Max.Power Kw / Hp</th>
<th>Max.Torque N.m / lb.ft</th>
<th>Working Pressure Bar / psi</th>
<th>Weight kg / lb</th>
<th>The type of engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM07Y</td>
<td>27 / 36</td>
<td>353 / 260</td>
<td>7 / 100</td>
<td>23 / 50</td>
<td>17 / 28 21 / 32 [up to 7 cylinder]</td>
</tr>
<tr>
<td>SM07P</td>
<td>27 / 36</td>
<td>353 / 260</td>
<td>7 / 100</td>
<td>23 / 50</td>
<td>21 / 31</td>
</tr>
<tr>
<td>SM10</td>
<td>51 / 68</td>
<td>476 / 350</td>
<td>7 / 100</td>
<td>34 / 75</td>
<td>21 / 32 [8 &amp; 9 cylinder] 25 / 33, 21 / 31 23 / 30, 27 / 38</td>
</tr>
<tr>
<td>SM12</td>
<td>120 / 161</td>
<td>680 / 501</td>
<td>10.3 / 150</td>
<td>35 / 77</td>
<td>32 / 40</td>
</tr>
</tbody>
</table>
Mechanical Cylinder Lubricator

Cylinder Lubricator
The cylinder lubricator is a specific volumetric pump with a plunger and barrel and is designed to deliver a specific quantity of lube-oil to the cylinder liner. The main purpose is to reduce corrosion, friction, and also to increase the sealing effect between the piston and cylinder liner.

ME Lubricator & Heating Tank
ME Lubricator is electronically controlled system to reduce corrosion, friction, and increase the sealing effects between piston and cylinder liner.
ALPHA Cylinder Lubrication System

ALPHA Cylinder Lubricator is controlled by an electronic system and reduces corrosion, friction as well as increasing the sealing effect between piston ring and cylinder liner.

<table>
<thead>
<tr>
<th>Type</th>
<th>Flow Rate</th>
<th>Pump Size</th>
<th>Motor Speed</th>
<th>Motor Size</th>
<th>Motor Voltage</th>
<th>Motor Frequency</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.4m³/h</td>
<td>4ccm</td>
<td>1,700RPM</td>
<td>2.2KW</td>
<td>440V</td>
<td>60Hz</td>
<td>275kg</td>
</tr>
<tr>
<td>2</td>
<td>0.8m³/h</td>
<td>8ccm</td>
<td>1,700RPM</td>
<td>2.2KW</td>
<td>440V</td>
<td>60Hz</td>
<td>275kg</td>
</tr>
<tr>
<td>3</td>
<td>1.3m³/h</td>
<td>14ccm</td>
<td>1,700RPM</td>
<td>3.0KW</td>
<td>440V</td>
<td>60Hz</td>
<td>275kg</td>
</tr>
<tr>
<td>4</td>
<td>0.4m³/h</td>
<td>5.5ccm</td>
<td>1,410RPM</td>
<td>2.2KW</td>
<td>380V</td>
<td>50Hz</td>
<td>275kg</td>
</tr>
<tr>
<td>5</td>
<td>0.8m³/h</td>
<td>9.9ccm</td>
<td>1,410RPM</td>
<td>2.2KW</td>
<td>380V</td>
<td>50Hz</td>
<td>275kg</td>
</tr>
<tr>
<td>6</td>
<td>1.3m³/h</td>
<td>16ccm</td>
<td>1,410RPM</td>
<td>3.0KW</td>
<td>380V</td>
<td>50Hz</td>
<td>275kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Flow Rate</th>
<th>Pump Size</th>
<th>Motor Speed</th>
<th>Motor Size</th>
<th>Motor Voltage</th>
<th>Motor Frequency</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>105 gal/hr</td>
<td>0.25in³</td>
<td>1,700RPM</td>
<td>2.2KW</td>
<td>440V</td>
<td>60Hz</td>
<td>605lb</td>
</tr>
<tr>
<td>2</td>
<td>211 gal/hr</td>
<td>0.49in³</td>
<td>1,700RPM</td>
<td>2.2KW</td>
<td>440V</td>
<td>60Hz</td>
<td>605lb</td>
</tr>
<tr>
<td>3</td>
<td>343 gal/hr</td>
<td>0.85in³</td>
<td>1,700RPM</td>
<td>3.0KW</td>
<td>440V</td>
<td>60Hz</td>
<td>605lb</td>
</tr>
<tr>
<td>4</td>
<td>105 gal/hr</td>
<td>0.34in³</td>
<td>1,410RPM</td>
<td>2.2KW</td>
<td>380V</td>
<td>50Hz</td>
<td>605lb</td>
</tr>
<tr>
<td>5</td>
<td>211 gal/hr</td>
<td>0.60in³</td>
<td>1,410RPM</td>
<td>2.2KW</td>
<td>380V</td>
<td>50Hz</td>
<td>605lb</td>
</tr>
<tr>
<td>6</td>
<td>343 gal/hr</td>
<td>0.98in³</td>
<td>1,410RPM</td>
<td>3.0KW</td>
<td>380V</td>
<td>50Hz</td>
<td>605lb</td>
</tr>
</tbody>
</table>
Strong & Professional

SHIN HEUNG PRECISION CO., LTD
642-1, Ungchon-ro, Ungchon-myeon, Ulju-gun, Ulsan, Korea 44762
Tel : +82-(0)52-222-8650-2
Fax : +82-(0)52-222-8653
E-mail : shinheung@atlastech.co.kr
URL : http://www.atlastech.co.kr