



Photo courtesy: Pensol Industries

Lubricant to be used should be able to withstand all the required parameters.

foremost thing is to check for any OEM recommendation.

Jha elaborates this point further, "The selection criteria start with the OEM specification for the particular lube recommendation. The OEM specs combined with operational challenges at a particular region will help in identifying the suitable lubricant. Other selection criteria are higher efficiency, higher equipment life, and energy consumption and disposal requirements."

Shell Lubricants offers a wide range of products and services designed to reduce the process and equipment ownership costs by reducing unplanned equipment downtime, extending oil and equipment life and lowering maintenance costs.

"We usually recommend following the OEMs' specs, as they know better than anyone else as to what is required

for their equipment. That said, we equally recommend that end-users consider their own specific operating conditions, as they might vary from customer to customer. The more demanding the operating conditions, the more stressed the hydraulic system and its fluid will be. Under such operating conditions, more robust lubricant technologies, offering a higher Viscosity Index as well as higher shear stability — like our DYNAVIS® Technology — are highly recommended," says Vernet.

Applications

According to Jha, applications like mining, construction and material handling are completely different in nature of operations and loading requirements, even though there is similarity in many of the components involved, despite the different sizes. He elaborates, "Mining

equipment are running almost throughout the year in two to three shifts per day with average running hours of 6,000 hours per year compared to 3,000 hours for construction equipment and material handling equipment. Even the operating temperature, duty cycle and machine maintenance practices are different from site to site and OEM to OEM. By considering the operation hours throughout the year, mining fleets have to be more reliable and even small downtime can affect the end-customer profitability to a large extent. Equipment sump size, life and operation temperature and loading cycles are entirely different for these three off-highway sectors."

Highlighting the application difference in mining, construction and material handling equipment from other industry equipment, Khemka focuses on the Viscosity Index of the lubricant used. He says, "Mining, construction, and material handling applications are different from other industrial applications based on the speed, temperature, load, surrounding conditions, etc. Due to increase in load, the oil film should be able to sustain high load, hence high viscosity oil is desired. At high speed, the oil should have low viscosity to reduce the shear force and should also be able to form the required film all over the machine components. At slow speed it is vice-versa, i.e., there is a requirement for higher viscosity oil. Since the temperature is very high, oil with high Viscosity Index should be used, to maintain the required film thickness across the components. In dusty conditions, the oil used should be of high viscosity, to be compatible with the seal. In operating conditions, ideally, it should always be a mix of all the above parameters, since the surrounding temperature is very high along with moderate speed and high load. Hence the lubricant to be used should be able to withstand all the above parameters."

Vernet elaborates, "As already noted, in addition to the OEM's specs, the working environment and the demands that will be placed on the hydraulic system dictate lubricant features that deserve consideration. For example, the more difficult the digging conditions are,



"We see a more rapid adoption of leading-edge lubricants that provide energy efficiency, productivity benefits and lower the total cost of ownership."

Akhil Jha,
Vice President Technical, Shell Lubricants India