Why Use PXP™ IGO ISO 320 Instead of SAE 85W-140 in Power Ends?

1. ISO 320 is Optimized for Warm Climates

- ISO VG 320 falls within the **high-viscosity performance range** needed to protect power end gears and bearings under **elevated ambient and operating temperatures**, commonly found in Texas, New Mexico, and other active shale regions.
- At higher temps, 85W-140 can become **too viscous**, increasing internal drag and raising oil sump temperatures unnecessarily. In contrast, **ISO 320 flows better**, reduces parasitic losses, and promotes more efficient cooling without sacrificing film strength.

---

2. PXP™ EP Technology Outperforms Conventional 85W-140

- PXP ISO 320 contains a **reacted cationic EP additive system** that forms a **positively charged film**, magnetically bonding to metal surfaces. This delivers:
  - Lower coefficient of friction
  - Higher load-carrying capability
  - Reduced scuffing and wear, even under shock loads and extreme pressure
- Conventional 85W-140 relies on older sulfur/phosphorus EP chemistries that **break down at high temps**, leading to gear pitting and sludge formation in frac duty cycles.

---

3. Innovative Base Oil & Dispersant Package

- PXP ISO 320 is formulated using **Permian Production Lubricants' innovative base oil technology**, which offers superior oxidative resistance, high film strength, and extended viscosity retention.
- The proprietary **dispersant and acid-neutralizing package** stabilizes the oil in the presence of contamination and heat, actively controlling **Total Acid Number (TAN)**—a key contributor to corrosion and oil degradation in frac environments.
- This combination keeps the oil **cleaner, more stable**, and **in spec longer**, even in systems exposed to high pressure, heat, and chemical byproducts.

---

4. Less Aeration, Better Heat Transfer

- ISO 320 is thinner than 85W-140 and therefore:
  - **Airs less during recirculation**, reducing foam and cavitation
  - **Transfers heat more efficiently** out of the power end housing

- This helps maintain cooler bearing and gear temperatures — a key to longer component life in multi-hour frac stages.

---

5. Reduced Start-Up Drag and Pump Load

- In startup conditions — especially in colder mornings or after shut-in — 85W-140 can place **heavy resistance on drive systems** until it reaches operating temp.
- PXP ISO 320 provides **easier cold start flow** and quicker circulation to critical areas like crank bearings and crossheads, reducing **initial wear and mechanical drag**.

---

6. PXP ISO 320 Stays Cleaner, Longer

- In addition to its robust cationic EP layer, PXP ISO 320 uses a detergent and dispersant system that **prevents sludge**, **suspends contaminants**, and **neutralizes acids**.
- This reduces the formation of oxidation byproducts and keeps gearboxes, bearings, and crank assemblies **free of varnish, acids, and deposits**—extending equipment and fluid life significantly.

---

7. SAE 85W-140 ≠ Automatically Better Protection

- Many operators mistakenly believe thicker is always better. However:
    - **SAE 85W-140 and ISO 320 have similar viscosities at operating temp (~100°C)**.
    - The thicker SAE rating is mainly for cold performance — not a requirement in warm climates.
    - Overly thick oil can **increase wear** due to poor flow and starvation of critical areas in high-speed rotating components.

Performance Comparison SAE 85W-140 VS PXP ISO 320 for Frac Power Ends

Attribute	SAE 85W-140	PXP ISO 320
High-temp performance	Moderate	**Excellent**
Friction reduction	Conventional	**Cationic EP Film**
Start-up flow	Sluggish	**Smooth & Fast**
Heat transfer	Poorer	**Superior**
Wear protection	Base level	**Enhanced EP Layer**
Acid neutralization	Minimal	**TAN Control Package**
Aeration & foaming	Higher risk	**Low tendency**
Oxidation & sludge control	Limited	**Advanced dispersants**
Energy efficiency	Lower	**Improved**

Conclusion:
PXP™ ISO 320 offers **modern EP chemistry**, **acid control**, and **stability-enhancing base oils** that outperform conventional SAE 85W-140. With better thermal management, reduced wear, and cleaner operation under stress, it's the clear choice for operators who want to maximize uptime, extend drain intervals, and protect their most critical frac pump components.
