TECH TIPS
BY-PASS VALVES

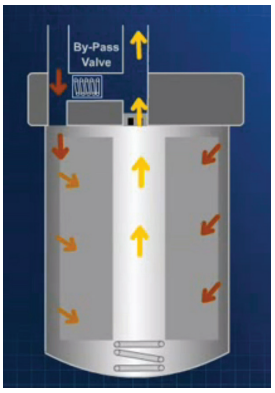
By-Pass Valves Are An Important Component.

The by-pass (relief) valve is an integral part of the lubrication system. By-pass valves are designed to allow oil flow to the engine components when the oil is cold, or if the filter becomes plugged. By-pass valves can be located in the lubricating system or in the lube filter.

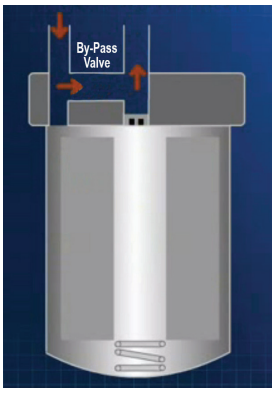
Under normal operating conditions, the by-pass valve will not be open. When the by-pass valve does open, the oil flows directly to the engine to prevent oil starvation and damage to the engine components. Each by-pass valve is set to open at a predetermined pressure differential.

There are two conditions that will cause the by-pass valve to open:

- **Engine Starts** - When the engine is started and the oil is cold. Cold oil does not flow through the filter element as freely as when it is warm. This causes the pressure differential across the filter element to increase and the by-pass valve to open. The by-pass valve will close once the oil is warm and the pressure differential across the filter element drops below the by-pass valve pressure setting.
- **Plugged Filter** – A filter will become plugged if the oil is contaminated, or the filter is not serviced according to the maintenance schedule. Once the filter becomes plugged, the by-pass valve will remain open. This allows unfiltered oil to lubricate the engine components, preventing engine damage from oil starvation.



By-Pass Valve Closed



By-Pass Valve Opened

Remember that filters are manufactured to meet engine requirements, including by-pass valve opening pressures. By selecting a filter designed to work with your equipment, you are providing the best possible filtration protection.