# Hydraulic (mineral) oils for BHH/BHHF actuators

**List of recommended brands and types for use under non-extreme conditions:**

| Product: | ISO norm: | Type/new indication: |
|---|---|---|
| BP | 15 | Energol HLP 15 (Bartran HV) |
| | 22 | Energol HLP 22 (Bartran HV) |
| | 32 | Energol HLP 32 (Bartran HV) |
| | 46 | Energol HLP 46 (Bartran HV) |
| CASTROL | 15 | Hyspin AWS 15 |
| | 22 | Hyspin AWS 22 |
| | 32 | Hyspin AWS 32 |
| | 46 | Hyspin AWS 46 |
| | 15 | Hyspin AWH-M 15 |
| | 32 | Hyspin AWH-M 32 |
| | 46 | Hyspin AWH-M 46 |
| CHEVRON | 15 | Mechanism LPS 15 |
| | 32 | Mechanism LPS 32 |
| | 46 | Mechanism LPS 46 |
| ELF | 15 | Visga 15 |
| | 22 | Visga 22 |
| | 32 | Visga 32 |
| | 46 | Visga 46 |
| ESSO/EXXON | 15 | Nuto H 15 |
| | 32 | Nuto H 32 |
| | 15 | Univis N 15 |
| | 32 | Univis N 32 |
| | 46 | Inivis N 46 |
| | 26 | Univis J 26 |
| MOBIL | 15 | DTE 11 M |
| | 32 | DTE 13 M |
| | 32 | DTE 24 |
| Q8-KUWAIT PETROLEUM | 15 | Haydn 15 |
| | 22 | Haydn 22 |
| | 32 | Haydn 32 |
| | 46 | Haydn 46 |
| SHELL | 15 | Tellus T 15 |
| | 37 | Tellus T 32 |
| | 46 | Tellus T 46 |
| | 22 | Tellus S 22 |
| | 32 | Tellus S 32 |
| | 46 | Tellus S 46 |
| STATOIL | 22 | Hydraway 22 |
| | 46 | Hydraway 46 |
| SUN OIL | 15 | Sunvis 815-WR |
| | 22 | Sunvis 822-WR |
| | 32 | Sunvis 832-WR |
| | 46 | Sunvis 846-WR |
| TEXACO | 15 | Rando HD 15 |
| | 22 | Rando HD 22 |
| | 32 | Rando HD 32 |
| | 46 | Rando HD 46 |

## Choice of hydraulic oil:

Hydraulic oil provides the hydraulic working processes with energy. In Bettis connection this means energy for valve motions.

The viscosity of the different kinds of oil varies according to the temperature; i.e. high temperature renders a low viscosity and vice versa. Some hydraulic oil types vary more than others. The oil viscosity is an indication of "how sluggish" the oil is.
If you change the viscosity, you also change the lubricating characteristics of the oil, especially the adhesion that normally results in the well-known dilemma: to choose suitable hydraulic oil, which means oil with suitable viscosity and temperature conditions.

In order to decrease operating times and to reduce the power loss in pipes, elbows and various components (solenoid valves etc.), which the oil is to pass on its way to the actuator, the lowest possible viscosity is preferred, whereas the "highest possible" viscosity is preferable in order to protect pumps, solenoid valves and other movable mechanisms.

There are naturally technically and scientifically other conditions than the viscosity (e.g. the vapour pressure) which determine the lubricating characteristics of the oil and minimize the risk of pump cavitation, but based on experience a viscosity within the range

**15 cSt. (min.) and 200 cSt.**

can comply with the above-mentioned conditions.

The choice of oil is not only a choice of viscosity, but also an evaluation of how cold and warm the oil can get during normal operation under different ambient temperatures (arctical versus tropical conditions).

**The choice of oil type is customer's responsibility as the oil is dependent on various conditions, such as pressure, temperature, etc.**