

APPLICATION GUIDE

HBSO & HBSR LEVEL SWITCHES

**Designed for Refrigeration by
Refrigeration engineers**

Service minded split type...



Your Sensor Specialist www.hbproducts.dk

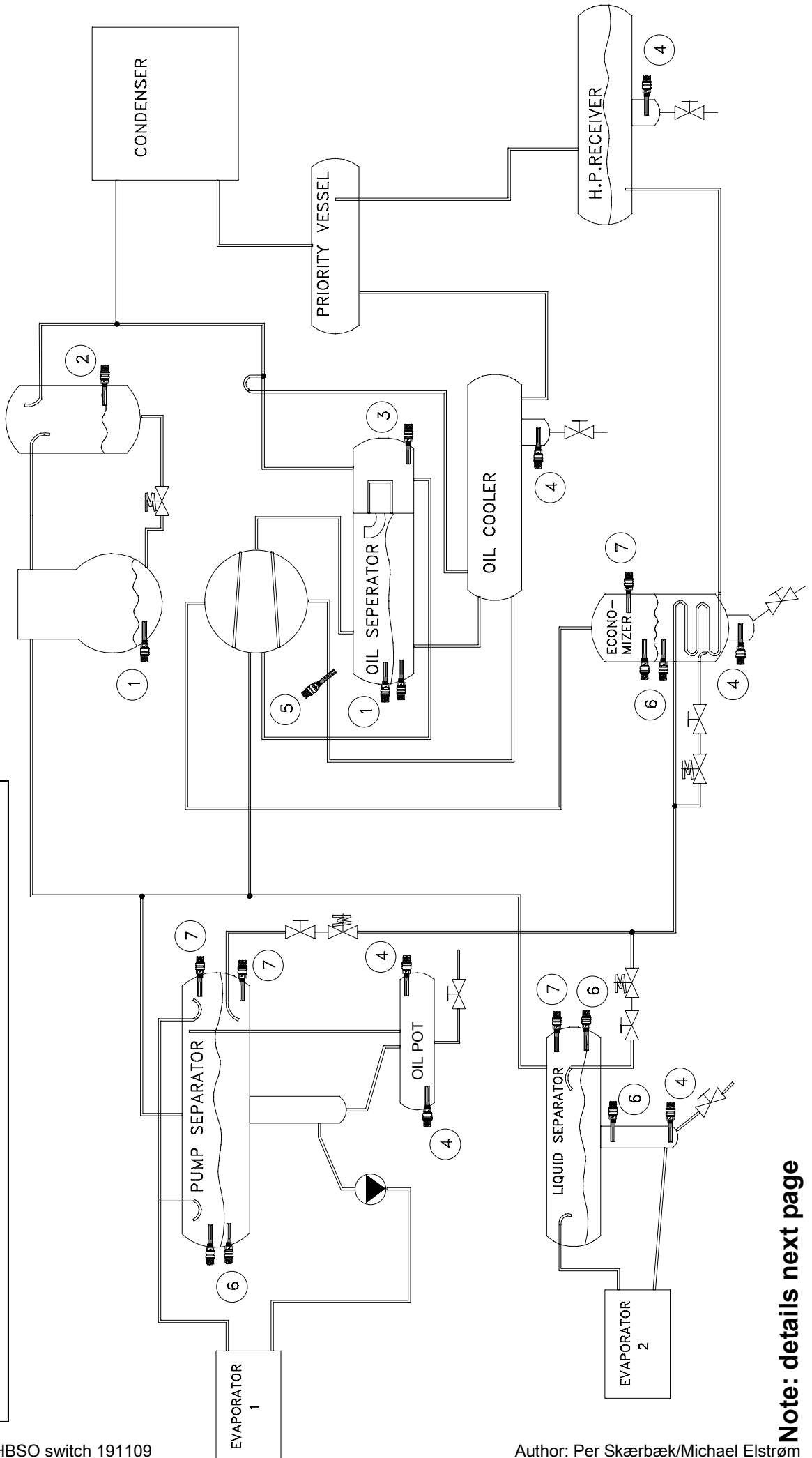


HB

Products

POSITION & LEVEL SENSORS

**APPLICATION GUIDE & EXAMPLES
USING HBSO and HBSR
LIQUID LEVEL SWITCHES.**



Note: details next page

HB Products liquid switches

Types:

HBSR: Switches on when refrigerant liquid is present, but will not react on oil

HBSO: Switches on when oil is present, but will not react on refrigerant liquid (except CO₂).

Applications examples:

- 1) HBSO**: Oil level in Screw and reciprocating compressors. This can be used for alarms, automatic oil return systems and oil equalizing systems between compressors.
- 2) HBSO**: Oil level indication in oil separators for reciprocating compressors. The **HBSO** will allow the solenoid valve for oil return to be turned on only when oil is present in the oil separator. If condensed liquid refrigerant is present in the oilseparator the **HBSO** will prevent the solenoid valve in the return line from opening until pure oil can be drained back to the compressor.
- 3) HBSO**: Oil level in last separation stage in oil separator for screw compressor. The **HBSO** can give alarm if the oil return system from last stage in the oil separator is blocked, or the oil separator is overloaded so oil is not returning fast enough. The **HBSO** will not react on condensed refrigerant liquid and give reason to false alarms.
- 4) HBSR-FS** : Control of accumulated oil in oil pots, liquid separators, economizers and intermediate coolers, on the refrigerant side of refrigerant cooled oil coolers, high pressure receivers. The **HBSR-FS** can indicate the presence of oil in these places and be used for automatic oil return systems, alarms and automatic draining and emptying systems of oil pots as the switch will only react on the liquid refrigerant and not the oil.
- 5) HBSO**: Oil flow switch. When the **HBSO** is placed in a vertical oil line just before the screw compressor it will serve as an oil flow switch protection of the oil flow to the compressor bearings. As the **HBSO** will not react on refrigerant liquid it is also a safety against running on liquid refrigerant instead of oil.
- 6) HBSR**: Refrigerant liquid level indication for on / off liquid injection to pump separators, liquid separators, evaporators, economizers, etc. The advantage of the **HBSR** is it will not be influenced by oil in the refrigerant, as it will not react on oil.
- 7) HBSR**: Refrigerant liquid level indication for high and low level alarms on pump separators, liquid separators, evaporators, economizers, etc. The advantage of the **HBSR** is it will not be influenced by oil in the refrigerant, as it will not react on oil.

Accessories:

Adaptors for sight glass connections suitable for sight glasses on Sabroe, Gram, Grasso, Mycom, Vilter, Stal, Bitzer, Carrier, etc. compressors as well as Phillips, etc sight glasses.

Adaptors for sight glasses with sight glass build into it.

Adaptors for welding into pipes and vessels.