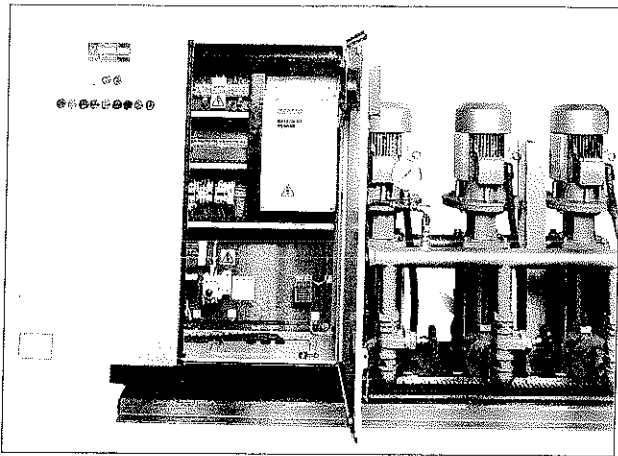




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HI Inverter Driven Booster Set

The Holden and Brooke HI range of inverter driven booster sets is specified for those applications requiring constant pressure with no large pressure changes.

Applications

HI booster sets can offer many of the following advantages over equivalent fixed speed booster pumping systems, depending on the application :-

- Simpler systems & control
- Less expensive installation
- Reduced running costs
- Lower maintenance costs
- Smaller space requirement
- Lower pump speed
- Reduced noise levels
- Prolonged pump life.

Installation and Operational Economies

A small fixed speed pump set will usually be less expensive than an HI set. However, for larger and more complex applications, this apparent cost penalty is minimised. This is because the fixed speed set may require more pumps and a jockey unit whereas an HI generally will have fewer pumps, thus offsetting the cost of the inverter and its controller.

When running and maintenance costs are considered, the larger inverter driven packaged booster set is often the more economical alternative.

Space Utilisation

In most cases, the HI set will need less floor area than an equivalent fixed speed set. With no jockey pumps and often fewer pumps to share the duty, the inverter driven set can be assembled onto a smaller baseplate.

Specification

Fully packaged pumping set comprising:-

Fabricated heavy gauge steel baseplate, either - High efficiency **Starbloc** gunmetal fitted pumps or alternatively all gunmetal construction, with stainless steel shafts. See *Starbloc leaflet for details.* or - High efficiency **RVL** vertical multistage pumps with stainless steel impellers, stage pieces and shaft with cast iron end bodies alternatively all-stainless steel RVLS construction.

Copper tube BS2781 Table X, alternatively galvanised mild steel, pipework.

Gunmetal (up to 50mm) or gunmetal fitted (larger) wedge type isolating and non-slam check valves.

IP54 steel control panel, with contactors, thermal overload relays, fuses and minimum run timers. The lockable door is fitted with test/off/auto switches, power on, break tank low level, pump running and tripped lights and duty pump select switch.

PWM digital type frequency inverter with full RFI and EMC compatible equipment.

WRC listed 18 litre or 60 litre hydraulic accumulator, with replaceable membrane, is fitted to the set

BMS Compatibility

Volt free contacts for pump run and tripped and break tank low level are fitted as standard.

Option: Further status information.

WRC Listing

HI booster sets are available with all wetted components WRC listed.

Drawings

See Starpak drawings leaflet.



Certificate No. 930846



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Selection Charts

See Starpak/Starbloc/RVL booster leaflets.

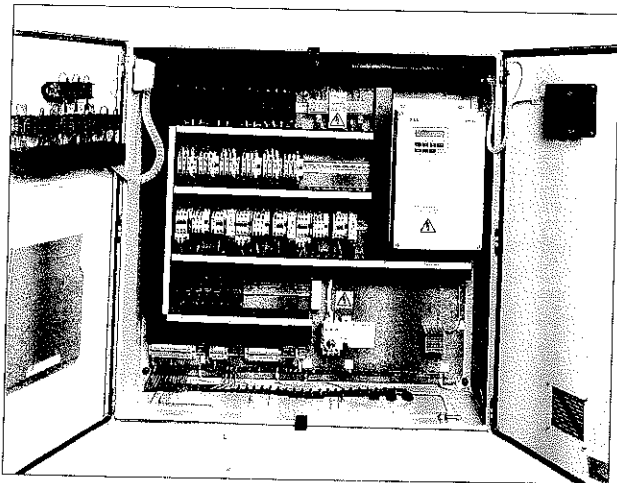
Accumulator

Larger accumulators can be supplied to increase the rest time between pumping cycles. We supply them loose or fitted as requested.

Energy Efficiency

The HI set will generally be as efficient as a well engineered fixed speed booster set, which may have a jockey pump for low demand periods and a duty sharing arrangement between the main pumps.

By running a full duty-rated pump at lower speeds with inverter control, the need for a jockey pump to cover reduced demand periods is eliminated. Similarly the speed increasing option can mean that fewer pumps are needed to provide for increased demand conditions. The inverter control ensures that the pump delivers the duty required at its optimum efficiency to meet this need. The HI booster set is especially suited to applications where the change in demand is an increase above normal duty conditions, rather than a reduction.



Caution

If the inverter fails, the set will revert to fixed speed control and the pump shut valve pressure will be imposed on the system. Therefore, system components should be engineered to suit the equivalent fixed speed set.

Control Systems

A change of system demand results in a corresponding change in system and pump discharge pressure. This pressure is sensed by a transducer, which sends a proportional signal to a PI controller. The controller compares the pressure to a reference setting and transmits a current (4-20 mA) to the inverter. If the pressure falls below the reference then the inverter will increase the pump speed to meet the increased supply demand - and reduce the pump speed to save energy when demand falls.

The Holden and Brooke HI set will shut down the pumps during periods of low or zero demand. The storage vessel air charge is set at a pressure below the nominal system setting. Water is therefore diverted into the reservoir to provide a temporary supply whilst the pumps are idle. The lead pump will re-start when system water pressure drops below the air charge setting.

Multi- Pump Inverter Control

Where the duty is shared on multi-pump sets, one of the pumps is inverter controlled. If the pump running at its maximum speed does not meet system needs for ten seconds continuously, another pump is enabled at fixed speed. The lead pump speed is then reduced until the pressure is returned back to the set figure. The fixed speed pump runs for a minimum of four minutes.

Any one pump on the set may be driven by the inverter and be alternated on a timed basis.

Certified drawings supplied on request

Note: Improvements in general design and modifications in detail will be embodied for the benefit of clients as and when introduced, consequently this specification is subject to alteration, as may be necessary, without notice.

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