4ManPro

Elements For Manufacturing Processes

UNIDADES DE POTENCIA HIDRÁULICA

UNIDADES DE POTENCIA HIDRÁULICA COMPACTAS Y DE BAJO NIVEL DE RUIDO

YUKEN 油圧機器

油研工業株式會社

FINCSA GROUP

Energy-Saving Hydraulic Units and Controllers

Substantial energy saving of hydraulic units has been achieved by the inverter drive.

Hydraulic units equipped with variable displacement pumps feature greater energy-saving than those with fixed displacement pumps. Yuken's energy-saving hydraulic units and controllers utilize rotational frequency control with an inverter. This innovative configuration solves the problem of efficiency losses suffered by induction motors operating at light loads and ensures significant energy savings.

Efficiency Characteristics of Induction Motor
- At Rated Output: Maximum Efficiency
- At Light-load: Significant Efficiency loss

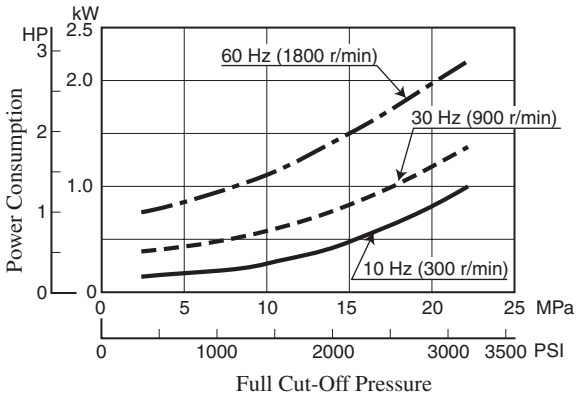
Rotational frequency control is effective for reducing power loss.

Extensive energy saving is possible by detecting a load pressure with the pressure sensor and keeping the motor rotation at the optimum level required for pressure holding. Based on the concept above, the following three different types of inverter-driven system and packages have been developed.

- **Energy-saving control system for hydraulic units (Energy saving controller)**
  For modification of existing hydraulic units to energy-saving type
- **Equipped with the variable displacement vane pump <YM-e Pack>**
- **Equipped with the variable displacement piston pump <YA-e Pack>**

- Example of reduction of power consumption with rotational frequency control

Combination of the A37 piston pump and 7.5 kW (10 HP) motor



Features of YUKEN energy-saving units / controllers

- **Extremely easy operation and maintenance**
  Adjustment and maintenance works are very easy as basically the conventional power unit is used.
- **Significant reduction of power consumption**
  With rotational frequency control, more than 40% of power consumption at pressure holding is possible compared to conventional hydraulic units.
- **Low Noise**
  Especially the noise level at the full-cutoff is reduced.
- **Discharge volume can be set to a certain volume at 50/60 Hz.**
  Regardless the power supply frequency, the rotation speed at the maximum discharge volume can be set by the inverter within the range from 1500 to 1800 r/min.
- **Continuous operation is possible even at breakdown of the pressure sensor or the inverter.**
  Operation at a certain rotation speed is possible even without receiving a signal from the pressure sensor due to breaking of wire or malfunction of the pressure sensor. Incase of malfunction of the inverter itself, the same operation mentioned above is possible by reconnecting of the primary power supply to the electric motor.

Space-Saving & Low Noise Type Hydraulic Power Units <YF Pack>

The Keywords are Cubic Structure

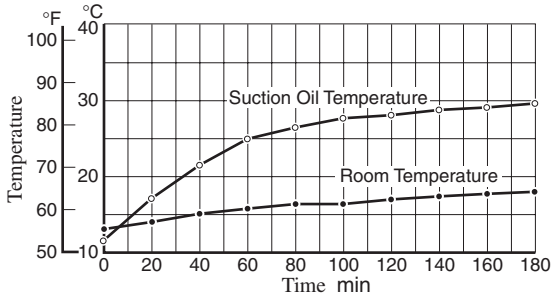
YF PACK are cubic integrated construction of Piston Pump, Electric Motor and Reservoir etc. Each function module linked directly together has allowed us to realize our pipeless concept which means no oil leakage.

Energy-Saving & Low Oil Temperature Rise

YF PACK save 10% of their energy consumption compared to YP pack. Improving cooling capacity reduced thermal radiation. Machines, in which YF PACK can be built, are free from heat distortion.

Temperature Rise

- Model Number: YF16-B-1-2.2-H-20
- Frequency: 50 Hz
- Pressure: Full-cut off at 7 MPa (1020 PSI), Continuous

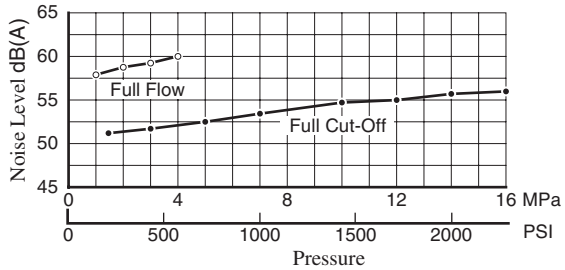


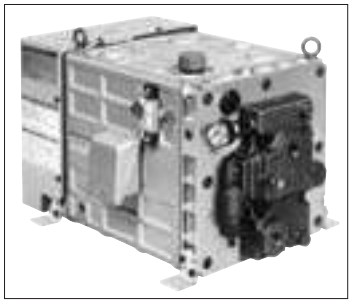
Noise Level 53 dB (A) & Low Vibration

We made the best of our hydraulic technology to take low noise and vibration. YUKEN has achieved noise level 53 dB (A).

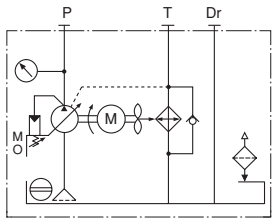
Noise Level

- Model Number: YF16 - C - 1 - 1.5 - H - 20
- One metre (3.3 ft.) horizontally away from YF Pack (average of five directions)
- Viscosity: 32 mm²/s (150 SSU) [ISO VG 32 Oils, 40 °C (104 °F)]
- Frequency: 50 Hz (1500 r/min)





Graphic Symbol



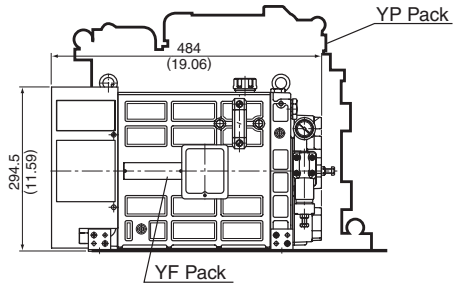
Options

You may have 10 options choosing various accessories: -size 005/01 base blocks (one station – three stations), thermo-sensor, pressure switch etc.

Set up Space Halved (compared to YP pack)

Smaller size and lighter weight of our unique cubic structure make YF PACK easy to build in various machines.

- **Volume Reduced 50 % (Compared to YP Pack)**
- **Mass Reduced 30 % (Compared to YP Pack)**



Model Number Designation

YF10 - B - 1 - 1.5 - H - ✻✻ - ✻ - 20 ✻

① ② ③ ④ ⑤⑥ ⑦ ⑧

① Geometric Displacement
② Pressure Adjustment Range
③ Reservoir Capacity
④ Electric Motor
} Refer to Specifications

⑤ Base Block Size……5:005, 1:01
⑥ No. of Base Block Stations
1: 1 Station, 2: 2 Stations, 3: 3 Stations
} None: Without Base Block

⑦ Options
M: Magnet Filter, L: Level Sensor
P: Pressure Sensor, T: Thermo Sensor
} Omit of not Required

⑧ Design Standards
None: Japanese Standard "JIS"
950: N. American Design Standard

Specifications

Model Numbers	Geometric Displacement cm³/rev (cu.in.³/rev)	Pressure Adjustment Range MPa (PSI)	Reservoir Capacity L (Gal.)	Electric Motor (4 Poles), 200 V AC (50 Hz) 200/220 V AC (60 Hz)	Approx. Mass kg (lbs.)
YF10–B–1–0.75–H–✻✻–20✻	10.0 (.610)	1.2– 7 (170–1020)	10 (2.6)	0.75 kW (1 HP)	44 (97)
YF10–B–1–1.5–H–✻✻–20✻		1.2– 7 (170–1020)		1.5 kW (2 HP)	49 (108)
YF10–C–1–1.5–H–✻✻–20✻		2.0–16 (290–2320)		1.5 kW (2 HP)	49 (108)
YF16–B–1–1.5–H–✻✻–20✻	15.8 (.964)	1.2– 7 (170–1020)	10 (2.6)	1.5 kW (2 HP)	49 (108)
YF16–B–1–2.2–H–✻✻–20✻				2.2 kW (3 HP)	51 (112)
YF16–B–2U–2.2–H–✻✻–20✻			20 (5.3)	2.2 kW (3 HP)	57 (126)
YF16–B–2S–2.2–H–✻✻–20✻				2.2 kW (3 HP)	57 (126)
YF16–C–1–1.5–H–✻✻–20✻	15.8 (.964)	1.2–16 (170–2320)	10 (2.6)	1.5 kW (2 HP)	49 (108)
YF16–C–1–2.2–H–✻✻–20✻				2.2 kW (3 HP)	51 (112)
YF16–C–2U–2.2–H–✻✻–20✻			20 (5.3)	2.2 kW (3 HP)	57 (126)
YF16–C–2S–2.2–H–✻✻–20✻				2.2 kW (3 HP)	57 (126)

Consult Yuken when detailed material such as dimensions figures is required.

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