

# Super Energy-Saving Mini-Size Hydraulic Unit (SMALL PAC)



Currently, the main role of hydraulics in machine tools is to hold clamp pressure. Hydraulics during clamping only holds pressure and hardly does any work, however, if this is performed while pumps and motors are in continuous operation, a large amount of energy is lost. This paper introduces a newly developed super Mini-size hydraulic unit specifically for use in pressure holding during clamping which can be installed in close proximity to clamp devices and is super energy-saving due to intermittent operation.

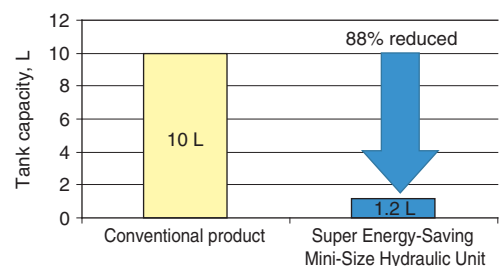
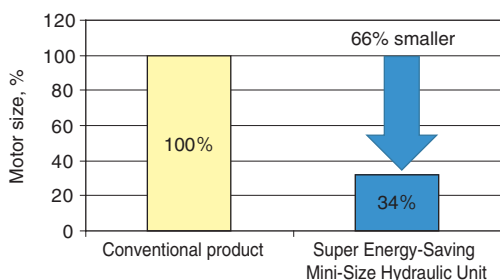
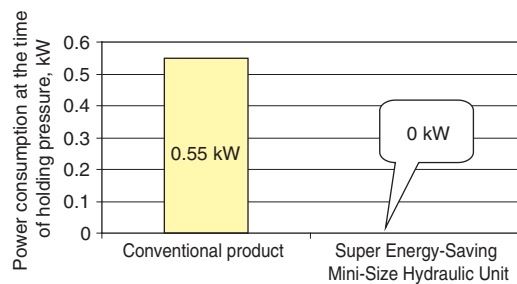
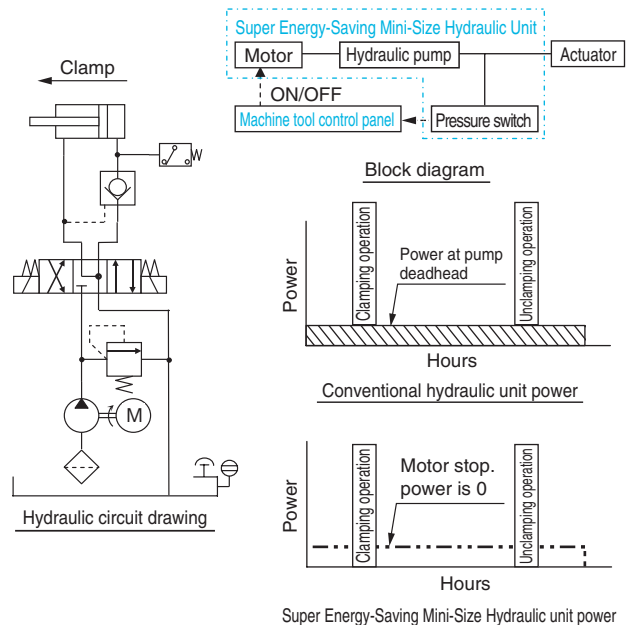
## Structure

A circuit which stops the motor by detecting the workpiece clamp pressure with a pressure switch. Pressure is held using a pilot operation check valve.

The figure to the right is a comparison of power consumption with the conventional hydraulic unit upon pressure holding.

## Features

- 1) Significant energy saving  
Intermittent operation of motor by combination of check valve which enhances sealing ability
- 2) Ultra small size
  - (1) Smaller motor (66% smaller)  
Adopts a short-time rating motor for intermittent operation
  - (2) Smaller tank (88% reduction)  
Suppresses oil temperature increase with intermittent operation  
Minimizes tank capacity  
Reduced hydraulic oil consumption
- (3) Integration of manifold for solenoid valve and connection flange for pump/motor (patent pending)



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