Source:JASE-W Japanese Smart Energy Products & Technologies
https://www.jase-w.eccj.or.jp/technologies/index.html

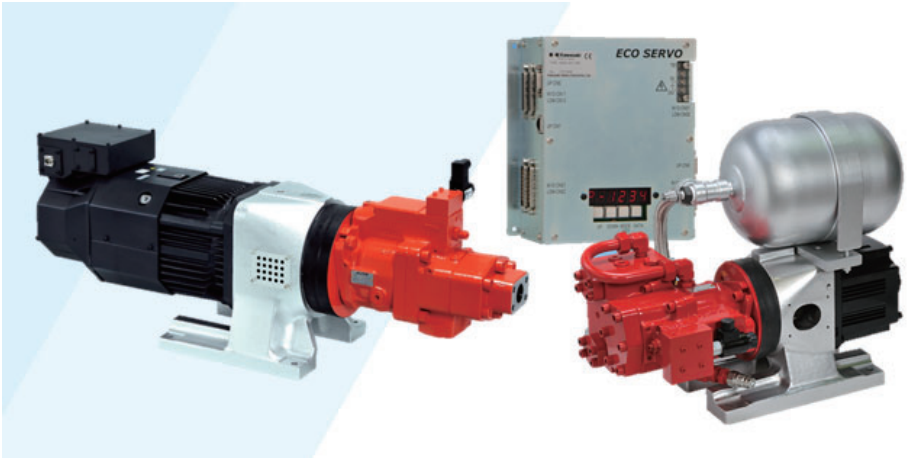
F-85	Keywords	Y2	device	Z4	electricity	E25	general-purpose machinery

Kawasaki Heavy Industries, Ltd.

Pump Speed Control Type Electro-Hydraulic Hybrid System

Features

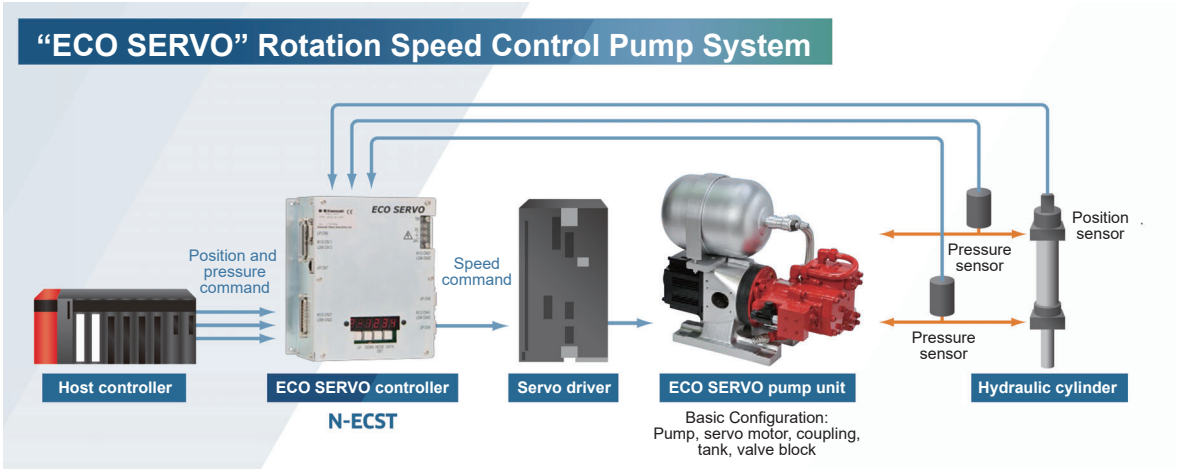
- Controls rotational speed of hydraulic pumps in accordance with the required power
- Enables configurations with both advantages of electric system and hydraulic system
- Minimizes power consumption when stopping actuators or holding pressure
- Downsizes hydraulic fluid tank and cooler capacity due to reduced calorific values



Pump unit and controller

Basic Concept or Summary

The pump speed control system drives the controlling device directly with variable speed control of the motors. The electric motor runs at desired delivery flow and to the desired directions only when the load power is needed.



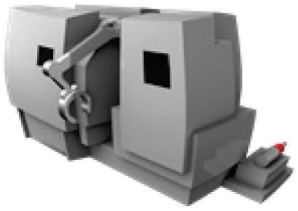
It is called an "electro-hydraulic hybrid system" since it uses the advantages of both hydraulic and electric control systems.

(1) Reduces pressure loss due to simple hydraulic circuits without a control valve since it directly controls the actuator
(2) Enables downsizing of fluid tank capacity and cooler capacity because of small calorific value generation

Effects or Remarks

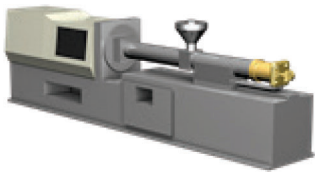
Applicable to a broad range of products

Energy saving
Max.60%



Forming machines, packing machines

Energy saving
Saving 50% energy compared with the conventional system



Injection molding machines

Reclaimers (steel making plants)

Press machines

Energy saving/reproducibility
Saving 40% energy compared with the conventional system

High-precision
5 μm Position control accuracy

Installation in Practice or Schedule

- Delivered: 1,029 units (as of the end of June 2020)
- Major applications: Press machines, molding machines, experimental system, machine tools, steel making plants, etc.

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