HST (General)

HST stands for Hydrostatic Transmission and is used in a travel system to connect the hydraulic pump with the motor in a closed circuit enabling continuous speed change from Forward to Stop/Neutral and Reverse or vice versa. HST is smoother in operation and smaller in size than mechanical transmissions installed on automobiles.

### Integrated HST (Pump & Motor)

#### Basic Construction

**Integrated HST (Pump and Motor)**

Integrated HST enables an easy combination of a speed reducer and a transmission. This unit is designed to meet the vehicle travel requirements for tractors, combine harvesters, snowplows, etc.

- **Neutral mechanism**
  - Orifice
    - Standard neutral mechanism allowing a relatively large neutral width.
  - Movable thrust plate
    - This method is less affected by the given conditions such as the input speed and oil temperature, allowing a stable neutral width. This is superior to the orifice method in neutral zone stability and adjustability of the neutral point.

- **Servo Regulator**
  - Manual Operation [SL]
  - Electric Control [EL]

#### Basic Characteristics

- **Output Power Characteristic**
  - Theoretical output speed: \( \frac{\text{Pump displacement}}{\text{Motor displacement}} \times \text{Input speed} \)
  - Actual speed: \( \frac{\text{Theoretical output speed}}{\text{Volumetric efficiency}} \)
  - Theoretical output torque: \( \text{Motor displacement} \times \text{HST load pressure} \)

- **Servo Regulator (Manual Operation) [SL]**
- **Servo Regulator (Electric Control) [EL]**

#### Output Speed Characteristic

- **Light and Heavy duty Models**
  - Light duty models: Suitable for the travel system of vehicles that serve light load work such as lawn mowers and combine harvesters, up to 18kw or smaller.
  - Heavy duty models: Suitable for the travel system of vehicles that serve moderate load work such as tractors and combine harvesters with engine horsepower of 18 to 59kw.

- **HVFD Series**

#### Integrated HST (Standard type)

- **HVFD Series**

#### Integrated HST (Two-speed model type)

- **HVFD Series**

- The direction of rotation of the pump input shaft can be set in either the CW or CCW direction for HVFD10 Series only. Please specify the type: either CW (clockwise) or CCW (counterclockwise) for another series, when ordering.

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**Example**

- **Model:** HVFD28V37
- **Accessories (optional):**
  - 1. Servo control
  - 2. Without servo control
  - 3. Manual [EL]: Electric control

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**Example**

- **Model:** HVFD37F-R35
- **Accessories (optional):**
  - 1. Servo control
  - 2. Without servo control
  - 3. Manual [EL]: Electric control

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**Example**

- **Model:** HVFD37F-V35
- **Accessories (optional):**
  - 1. Servo control
  - 2. Without servo control
  - 3. Manual [EL]: Electric control

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**Example**

- **Model:** HVFD37F-V50
- **Accessories (optional):**
  - 1. Servo control
  - 2. Without servo control
  - 3. Manual [EL]: Electric control
HST (General)
HST stands for Hydrostatic Transmission and is used in a travel system to connect the hydraulic pump with the motor in a closed circuit enabling continuous speed change from Forward to Stop/Neutral and Reverse or vice versa. HST is smoother in operation and smaller in size than mechanical transmissions installed on automobiles.

Integrated HST (Pump & Motor)

Basic Construction

Integrated HST (Pump & Motor)

Basic Characteristics

- Output Horsepower characteristic
- Output Speed characteristics
- Output torque characteristic

Servo Regulator (Manual Operation) [SL]
Ampere - Output speed characteristics

Servo Regulator (Electric Control) [EL]
HVFD37F-R35-EL example

Integrated HST (Pump and Motor)

Integrated HST enables an easy combination of a speed reducer and a transmission. This unit is designed to meet the vehicle travel requirements for tractors, combine harvesters, snowplows, etc. It can be combined with electronic control or servo functions.

<table>
<thead>
<tr>
<th>Model code</th>
<th>Accessories (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVFD29V37</td>
<td>SL</td>
</tr>
</tbody>
</table>

HVFD29 Series

- Servo control
- Oil: With servo control B, Manual E: Electric control

Light and Heavy duty Models

- Light duty models: Suitable for the travel system of vehicles that serve light load work such as lawn mowers and combine harvesters, up to 18kW or smaller.
- Heavy duty models: Suitable for the travel system of vehicles that serve moderate load work such as tractors and combine harvesters with engine horsepower of 18 to 59kW.

Main Mechanism

Neutral mechanism

- Standard neutral mechanism allowing a relatively large neutral width.
- Movable thrust plate

Option

- Charge pump

This component features the following advantages:
- Low operation torque allowing an easy operation and lower noise caused by link vibrations.
- Good responsiveness and a stable neutral characteristic.
- The fail-safe mechanism is included as a standard accessory for automatic return to the neutral position in case of hydraulic power source failure or link connection failure.
- Can be mounted on to a manual type HST.
HVFD28V37 (two-speed)

HVFD37V50 (two-speed)

Performance Curve
Operating oil: ISO VG46 Oil temperature: 50℃

<HST: Light load model>
- HVFD10F-N15, N18
- HVFD21F-R18, R23

<HST: Heavy load model>
- HVFD18F-R35
- HVFD23F-R35
- HVFD28F-R35
- HVFD37F-R35

<HST: Two-speed motor type>
- HVFD29V37-R35
- HVFD37V50-R35
Performance Curve  Operating oil: ISO VG46 Oil temperature: 50℃

<HST: Light load model>
- HVFD28F-R35
- HVFD37F-R35
- HVFD21F-R18, R23
- HVFD37V50-R35
- HVFD10F-N15, N18

<HST: Heavy load model>
- HVFD18F-R35
- HVFD23F-R35
- HVFD28F-R35
- HVFD37F-R35

<HST: Two-speed motor type>
- HVFD29V37-R35
- HVFD37V50-R35