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 type	Separate type
Products included in this catalog.	A pump and a motor are integrated in a single unit (closed circuit piston pump with a piston motor)	
Not included in KYB prod- uct lineup.		Closed circuit piston pump is connected with a hydraulic motor with piping.

Integrated HST (Pump & Motor)

Basic Construction



② Actual speed: (Theoretical output speed) × (Volumetric efficiency) ③ Theoretical output torque: (Motor displacement) × (HST load pressure)

Servo Regulator (Manual Operation) [SL] Lever operation torque characteristic

HVFD37F-R35-SL example



Servo Regulator (Electric Control) [EL] Ampere - Output speed characteristics



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.

HVFD Series



HVFD28V37

[Model code] Accessories (option						
Example	HVFD - 28 V	37 - R 35 - P - LT - SL				
	1 2 3	4 5 6 7 8 9				
1	Integrated HST					
2	Pump displacement	Nominal (cm ³ /rev)				
3	Motor type	F: Fixed displacement, V: Variable displacement (2-speed)				
4	Motor displacement	Nominal (cm3/rev)Void: The same as the pump displacement				
5	High pressure relief	R: With relief valve, N: Without relief valve				
6	Max. pressure	МРа				
7	Neutralization mechanism	P: Movable thrust plate type (mechanical) O: Fixed orifice type, Void: Not equipped				
8	Charge pump	Void: Separate charge pump type LT: With charge pump				
9	Servo control	Void: Without servo control, SL: Manual, EL: Electric control				

Integrated HST (Standard type)

Application	Model	Pump: Motor displacement (cm³/rev)	Max. pressure (MPa)	Max. input speed (rpm)	Max. output speed (rpm)	Weight (kg)	Neutralization mechanism	Option
Light duty	HVFD10F-N15	10 : 10	15	3000	0~3000	6.5	Orifice	Unload valve
	HVFD10F-N18	10 : 10	18	3000	0~3000	7	Orifice	Unload valve
	HVFD21F-R18	21.5 : 21.5	18	3600	0~3600	13.5	Orifice	Unload valve
	HVFD21F-R23	21.5 : 21.5	23	3600	0~3600	13.5	Orifice	Unload valve
Heavy duty	HVFD18F-R35	18 : 18	35	3600	0~3600	18	Orifice/movable thrust plate	_
	HVFD23F-R35	23.4 : 23.4	35	3400	0~3400	22	Orifice/movable thrust plate	Servo mechanism
	HVFD28F-R35	28.1 : 28.1	35	3400	0~3400	24	Orifice/movable thrust plate	Servo mechanism
	HVFD37F-R35	37:37	35	3200	0~3200	26	Orifice/movable thrust plate	Servo mechanism

Integrated HST (Two-speed motor type)

Model	Pump: Motor displacement (cm³/rev)	Max. pressure (MPa)	Max. input speed (rpm)	Max. output speed (rpm)	Weight (kg)	Neutralization mechanism	Option
HVFD28V37-R35	28.1 : 20.5/37	35	3200	0~4500	35	Orifice/movable thrust plate	Servo mechanism
HVFD37V50-R35	37 : 27.5/50	35	2800	0~3800	38	Orifice/movable thrust plate	Servo mechanism

* 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.

[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]

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.

[Option]

Charge pump

When the charge pump is used together with an oil hydraulic unit installed on the vehicle, select the charge pump displacement approximately 25% of the HST pump.

Servo regulator

This component features the following advantages:

 \Diamond Low operation torque allowing an easy operation and lower noise caused by link vibrations.

- \Diamond Good responsiveness and a stable neutral characteristic.
- \diamond The fail-safe mechanism is included as a standard accessory for automatic return to the neutral
- position in case of a hydraulic power source failure or link connection failure.
- \diamondsuit Can be mounted on to a manual type HST.



HVFD18F





HVFD23F



HVFD28F







HVFD37V50 (two-speed)





Performance Curve Operating oil: ISOVG46 Oil temperature: 50°C

<HST: Light load model>





<HST: Heavy load model>





<HST: Two-speed motor type>





