Advantages and Benefits

Features	Advantages	Benefits
Servo drive with hydraulic power transmission	Drive is nearly wear-free and absolutely protected against overloads	+ Higher availability + Lower maintenance and repair costs
	Drive components and moving parts have a significantly longer lifetime	
	Maximum force over the entire stroke	+ Higher flexibility
	The machine and the drive are not mechanically stressed or damaged in the event of an overload	+ No unplanned downtimes
Hydraulic system in a closed circuit without directional valves or servo valves	The HPD hybrid servo drive is easy to integrate	+ Cost-efficient installation
The integrated hydraulic system is self-contained	No structural changes necessary	+ Fast commissioning
The hydraulic cylinder is controlled with a servo pump whose flow rate is matched to the cylinder surfaces	Simple and compact design with no conventional valve and control technology	+ Low cost and effort for commissioning, training, maintenance and repair
	Hydraulic system throttle losses are kept to a minimum	+ Energy-efficient drive and lower cooling capacity needed
	Simple system configuration	+ Higher availability + Lower maintenance and repair costs + Lower investment costs for infrastructure
	Lower peak current	
	No cooling in the inverter	
	No braking resistor in the inverter	
	Automatic load switching	+ Higher production flexibility

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VOITH
Engineered Reliability

VT 2405 en, BD, WD, 200, 2016-10. Dimensions and illustrations without obligation. Subject to modifications.

VOITH

HPD Hybrid Servo Punch Drive.

Voith has been defining the latest technology in conventional hydraulic punch systems for over 30 years. These systems stand for higher performance, extraordinary reliability and optimized efficiency.

Our experience and our current developments with servo pumps and drives with a closed circuit have produced another technological leap forward: HPD hybrid servo punch drive.

Innovative Hybrid Punch Drive

HPD is a new complete system from Voith, specially developed for use in punching and nibbling machines of all power classes. The unique feature of the HPD punch drive is its regulation of the hydraulic cylinder with a servo pump in a closed circuit that does not use directional or servo valves.

Your Advantages
- Maximum force over the entire stroke
- Nearly wear-free
- Absolutely protected against overloads
- Extremely robust
- Energy efficient

The HPD principle of operation is based on a hydraulic system in a closed circuit. The pump is directly connected to the cylinder and operates as a hydrostatic transmission. In contrast to mechanical gearboxes, hydrostatic transmissions and the linear cylinder are nearly wear-free and extremely robust.

Installation of the hydraulic system is extremely simple. No hardware or software conversions are necessary. The HS4 controller version for HPD offers the same hardware interface and parameter structure as all Voith HS4 versions. The HPD fits mechanically into the same installation interface as all Voith punch drives.

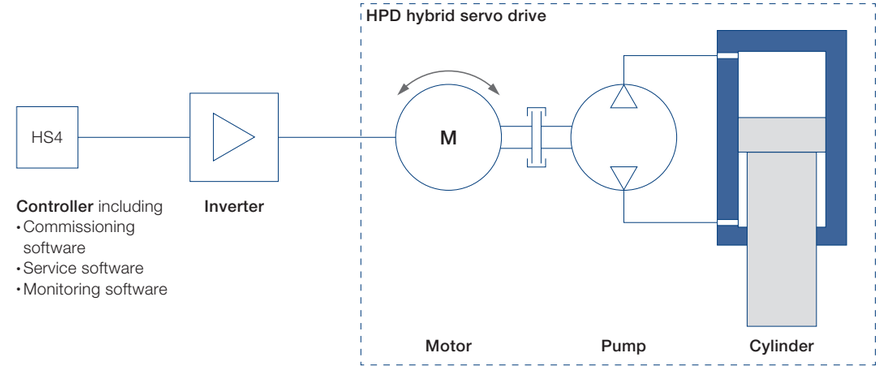
For high productivity, the HPD operates in the part load range with low forces and high speed. If large forces are necessary for punching and forming, the HPD operates in the full load range and can deliver up to 300 kN. The changeover is automatic by CNC / PLC without intervention. Part load and full load are available at all times and at any desired point over the entire cylinder stroke. This makes the HPD extremely versatile. Mechanical gearboxes deliver the maximum force only near the lower stroke range.

The advantage over a fixed mechanical transmission is that the HPD automatically adapts to the different requirements of the punching machine. This means that the servo motor and inverter can be designed with a fraction of the size and rated power (reduced power system load). The inverter accordingly does not need cooling or a braking resistor. You can thus reduce investment and operating costs significantly.

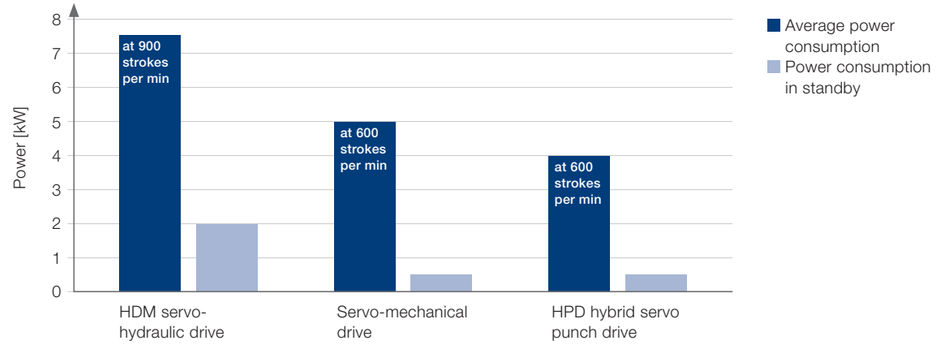
HPD Performance Data

		HPD 20	HPD 30
Maximum punching force	kN	200	300
Maximum number of strokes	Strokes/min	600	600
Precision	mm	0.03	0.03
Average power	kW	3 - 5	3 - 5
Input peak current	A	50	50
Idling power consumption	kW	< 0.5	< 0.5

Design of the HPD Hybrid Servo Drive

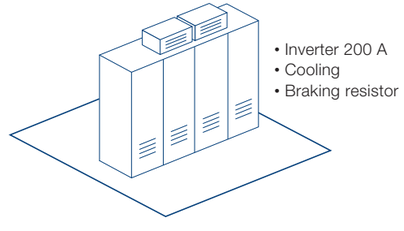


Power Consumption

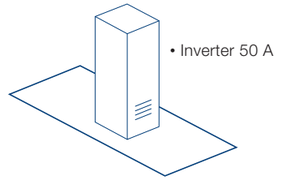


Size Comparison: Electrical Control Cabinet

Servo-mechanical drive



HPD hybrid servo punch drive



Savings
- No cooling
- No braking resistance
- 75 % lower peak current
- Less space needed for the control cabinet