

Smart Controls for PAVING MACHINES



THE ROAD GOES ON

Roadbuilding is a never-ending enterprise. It seems even before one job is finished, another one is beginning. What man builds, nature and weather are always tearing down. Old pavement is recycled and made new. The world is growing and commerce and industry depend on **continual renewal of infrastructure.**

This demanding, unending cycle requires **new, smarter, and more efficient roadbuilding machinery** to keep pace. Fleets large and small need reliable equipment with robust, powerful, and **precise hydraulic controls** for all types of functions. HydraForce understands this need, and is ready to provide the **POWER to PAVE.**



The Pavement
never ends



UPTIME IS THE ONLY TIME

Your machinery makes you money. Down equipment means costly delays, idle staff, and expensive repairs. Compact and reliable cartridge valves from HydraForce are tough enough to perform, and they are also easier to maintain than stack or CETOP valves. **A cartridge can be replaced in minutes** where it may take hours to replace a failed valve stack. This means when things do go wrong, **you are able to get back up and back to making money quickly.**



MANAGE YOUR FLEET WITH GatE AND GlobE

In our connected world, **smart devices** are everywhere: from the car you drive to the refrigerator in your kitchen. **Imagine your connected fleet** being able to report that it's time for a filter change, or the hydraulic pressure is dropping in the conveyor circuit of one of your pavers. **GatE provides a secure encrypted gateway for all your equipment's data.** GatE enables remote monitoring, diagnostics, and software updates. **GlobE is an IoT platform provided as a service** for OEMs and fleet owners to enable customized services. GlobE is **optimized for mobile machines** using HydraForce ECU products or even third-party CAN connected networks. It is provided as a **scalable, reliable, and cost-effective cloud service.**

UPTIME
is the ONLY TIME

PAVERS: BIG AND SMALL, THEY DO IT ALL

Pavers take truckloads of hot asphalt and lay it down in **smooth and perfect mat** over the road surface. Weather you are paving a highway or a driveway, **it takes a lot of power to do this efficiently**. Tons of material are conveyed at independent feed rates to either side of the machine where augers spread it out evenly in front of the screed.

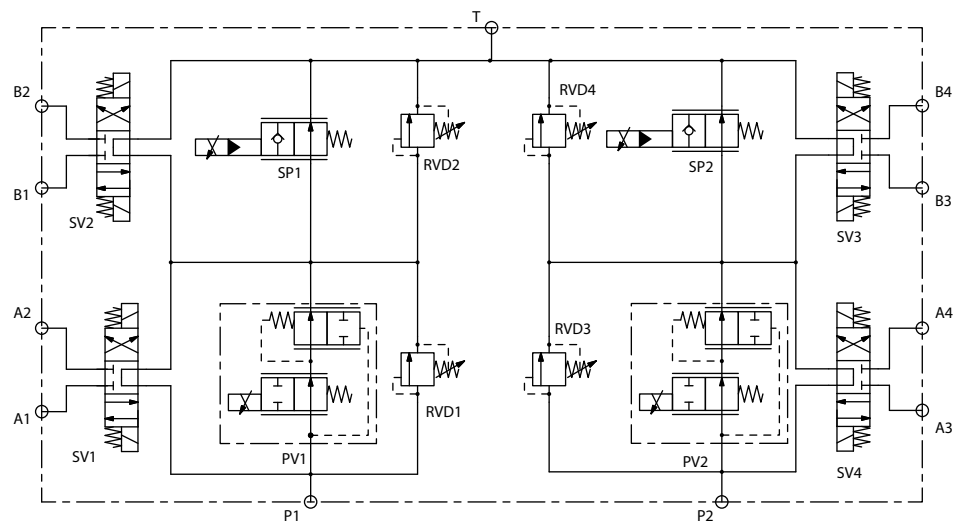
Consistency is key to quality pavement. The advancing screed must be fed with the precise quantity of material to ensure consistent thickness and density of the mat, even when paving around curves, or forming crowns or slopes in the grade.



Auger/Conveyor Drive

The asphalt feed system: the auger/conveyor drive consists of two independent parallel flow paths for the left and right sides of the machine. The conveyor and auger operate in series. A pressure compensated-proportional flow control (PV1, 2)

regulates the feed rate by shunting flow around the conveyor motor. A proportional flow control (SP1, 2) regulates the auger speed by shunting flow around the auger motor. Relief valves (RVD1-4) limit operating pressure to the motors. 3-position, 4-way directional solenoid valves (SV1-4) can reverse motor direction when needed.

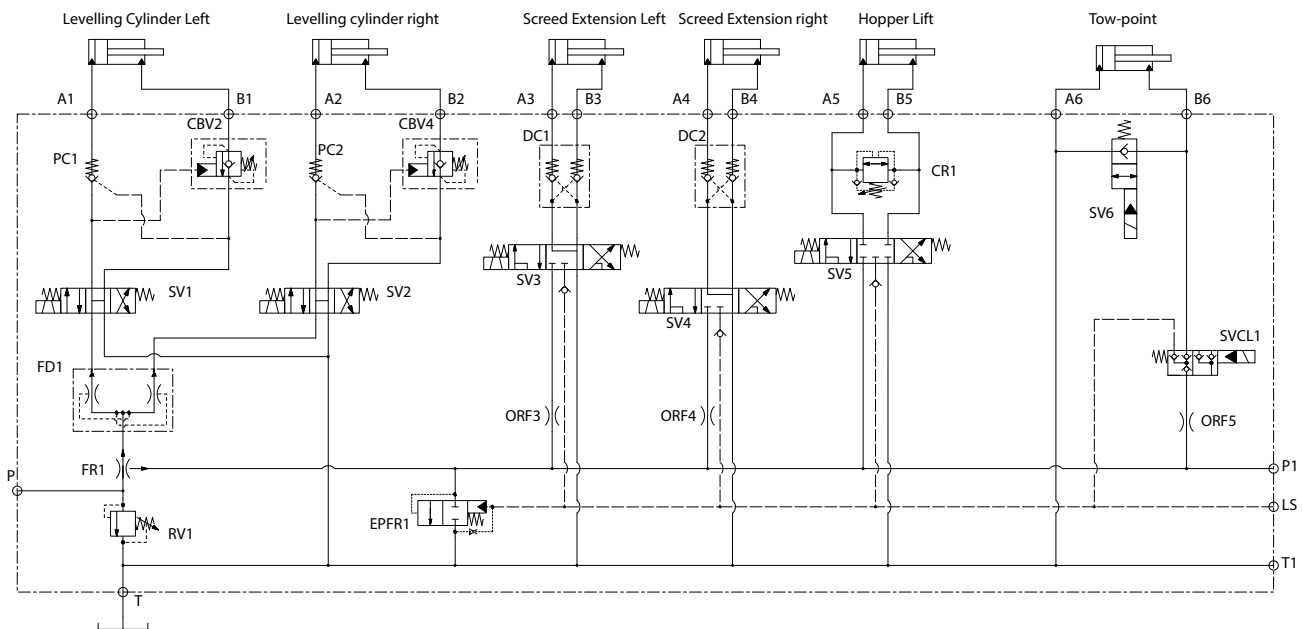


Auxiliary Function Controls

Just about every function on a paver is hydraulically actuated or powered. An auxiliary function manifold includes directional controls to position or operate each of the hydraulic cylinders on the machine, including:

- Raise/lower hopper wings
- Positioning flow gates
- Extending/retracting the left and right sides of the screed
- Raising/lowering the screed
- Setting the tow point/screed angle of attack
- Controlling screed vibration

Priority flow regulator and flow divider valves provide priority to the levelling cylinders. Solenoid operated 3-position 5-way directional valves extend/retract cylinders while providing an isolated load-sensing signal. EPFR pilot-operated logic element provides load-sensitive pump unloading. PO checks and counterbalance valves provide load holding and motion control. Relief valves protect components from overpressure and external load-shocks.

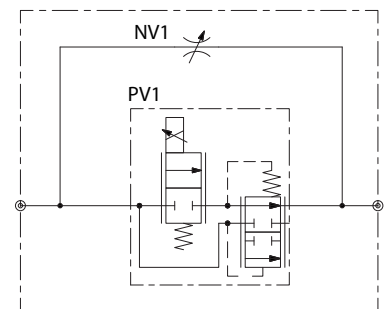


Screed Heater Generator Drive



To keep the surface as smooth as possible, pavers use an electrically heated screed. A hydraulically driven generator powers the heating elements. A closed-loop speed control ensures consistent generator output even as the engine speed, electric load, and available hydraulic

supply vary. The HydraForce EGDR-0101A Electronic Generator Driver controls the pressure-compensated flow control PV1 using input from EACD-1 Electronic AC frequency Detector. This PID control system is able to drive the generator speed to a setpoint with feedback, detecting fluctuation in the AC frequency of the output.



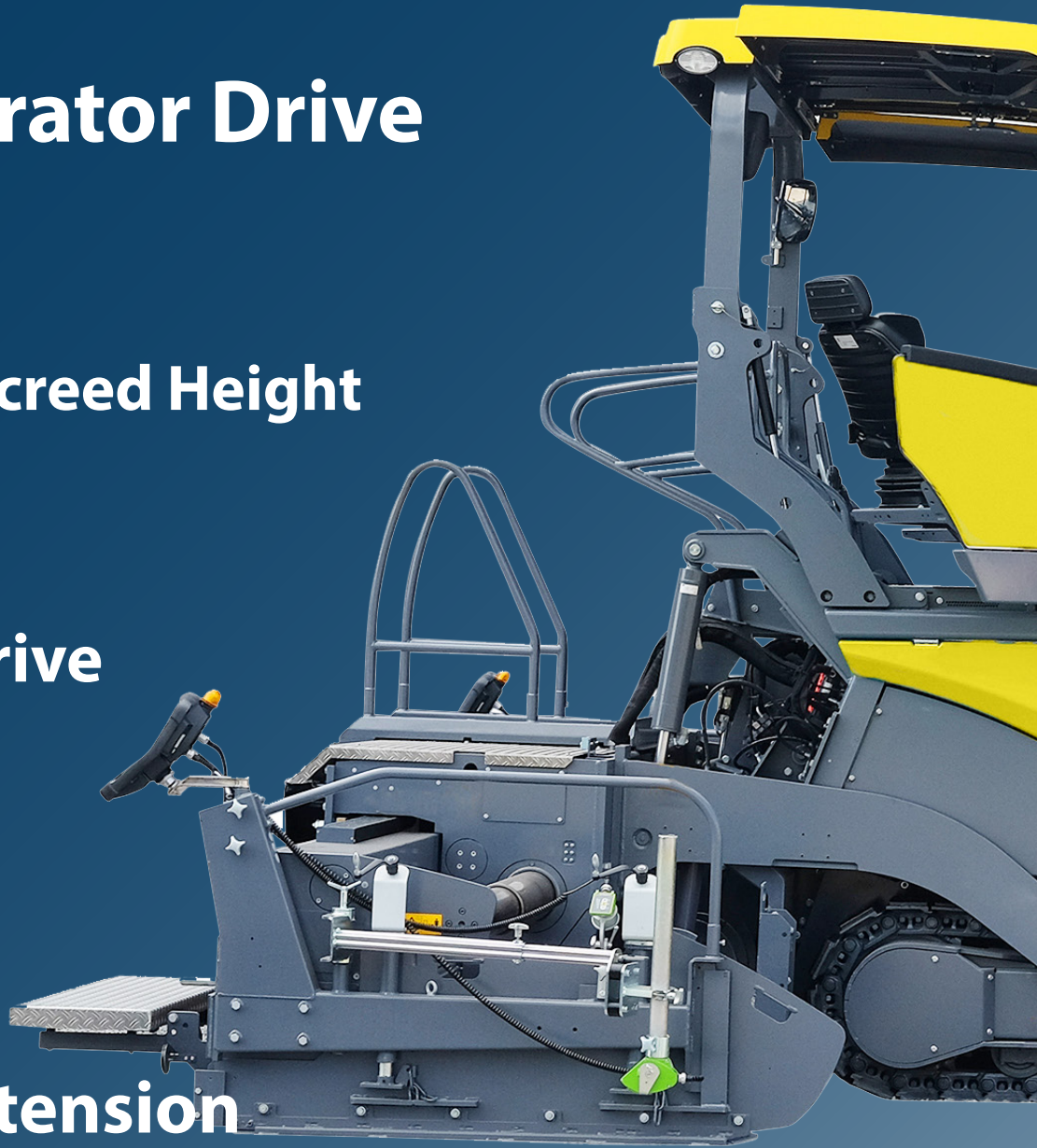
Generator Drive

Screed Height

Auger Drive

Vibration

Screed Extension



MORE FLEXIBILITY

Cartridge valves offer you the most flexibility when designing control systems. HydraForce has the widest range of sizes, operating pressures, function choices, and space-saving multifunction valves.

- Size valves for the flow requirements of the function
- Independent metering of A and B ports
- Simplify piping
- More valve choices
- Combine or distribute controls

MORE PERFORMANCE

On the jobsite, performance is key. Pavers that operate with power and precision give you the advantage.

- Integrated load sensing
- Flow sharing
- Closed-loop control
- HyPerformance™ valves rated to operate at 350 bar



Fleet Management

Conveyor Speed Control

Flow Gates

Hopper Doors

Tow-Point

MORE CONNECTIVITY

GatE and GlobE make fleet management and remote servicing easy and secure with 24/7 connectivity.

- Monitor machine performance
- Update parameters and software remotely
- Make service calls faster when the technician is prepared in advance with the right parts

MORE SERVICEABILITY

Get your machines up and running fast with HydraForce cartridge valves that can be changed in minutes compared to hours with stack valves.

- Easy swap out of components
- Modular distributed manifolds
- Removable coils
- Simplified plumbing

WHY CONSIDER HYDRAFORCE?



- World's largest privately owned cartridge valve manufacturer focused on EH system controls
- Broadest range of cartridge valves
- Designed EH systems for mobile equipment in every industry



- Free design support
- Simulation software
- Fast prototypes

- All manifolds are end-of-line function tested
- Use of Lean and Six Sigma practices
- Five year warranty on valves and manifolds



- Integrate sensors, fittings, ancillary valves, and other custom components into a single manifold
- Simplified circuit design
- Consolidated or distributed hydraulic systems



RoHS COMPLIANT HydraForce valve and manifold products comply with the European Council and Parliament RoHS directive 2002/95/EC limiting the use of hazardous substances. For all other products, consult factory.

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