

TRAILED AG SYSTEMS



EFFICIENT SOLUTIONS FOR TRAILED EQUIPMENT

Feeding the world today takes more than a green thumb, it takes technology: smart and efficient equipment that helps farmers **squeeze every dollar** out of a crop. The value agricultural OEMs provide lets farmers maximize resources, reclaim their time, and **get more done, sun to sun.**

HydraForce helps you provide the most **advanced** and **reliable** technology to the market. Fluid power is the workhorse of **modern** agricultural machinery, and **compact efficient** cartridge valves from HydraForce allow designers the most **flexibility** in crafting systems that deliver **precise metered power** to implements, drive systems, and actuators. Reliable and serviceable cartridge valve technology makes complex **distributed on-board control** systems possible for trailed equipment, achieving precision that would not otherwise be possible relying on tractor hydraulics.

At HydraForce our talented sales and application engineering staff offer you the expertise and creativity to build solutions that let your products stand out in the crowded marketplace. **We help you accelerate your time to market, and add real value for your customers.**

Depend on us!



TRAILED
equipment
that
LEADS
the market

CARTRIDGE PRODUCT OFFERING

- Solenoid-operated proportional flow and pressure controls
- IP-69k rated environmental coils with sealed terminals
- Pressure compensators
- Directional and logic valves
- Pressure-limiting devices
- Double-blocking low-leakage solenoid valves
- Response time as low as 5 ms
- Balanced loading of series motors with HTD torque dividers
- Restrictive and bypass type priority flow dividers

Electrohydraulic Solutions

Electronic controls elevate cartridge valves to a whole new level of performance. Electronic Control Units with fast processors and wide range of flexible I/O options let you build complex logic and respond to changing operational conditions. Valve drivers with CAN networking capabilities allow precise metering profiles or closed-loop PID control with feedback. Our HF-Impulse software, available for free download, lets you easily configure valve drivers, monitor operating conditions and set tuning parameters, flash firmware updates, or create custom applications without writing a single line of code.

- ECU products programmable with CodeSys or configurable with HF-Impulse
- ExDR valve drivers configurable with HF-Impulse
- CAN Open/ISO J1939/ISOBUS
- Temperature and pressure sensors
- CAN button panels
- Display and interface products
- HF-Impulse configuration, programming, and service tool

Advantages

System Efficiency

Cartridge valves can be combined and uniquely packaged to optimize machine efficiency, improve operator control, and integrate multiple functions into a common control scheme.

Serviceable

Significantly reduce machine downtime and cost for repair or maintenance with a screw-in manifold valve solution that is easily, quickly and economically serviced.

Customizable

No fixed configuration castings. Manifold housings can be configured in a variety of sizes, shapes and materials to fit tight spaces.

Flexible

Using base circuit configurations as a starting point, manifold systems can be customized to fit any mounting, shape or size constraint.

Durable

Every manifold is 100% function-tested at the factory, and every valve comes with the HydraForce five-year warranty.

Optimal Performance

Cartridge valves offer precise, application-coordinated performance and unmatched tune-ability.

Fewer Leak Points

A single manifold block with fewer connections presents less opportunity for hydraulic leakage.

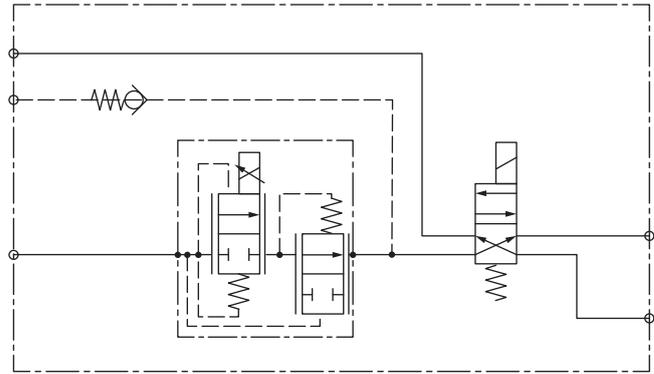


SMART
flexible
distributed control systems

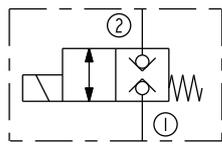
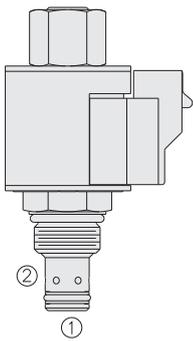
SELF-LOADING WAGONS

HydraForce products for loading wagons include proportional flow control, meter in/meter out, double-blocking load holding valves, proportional pressure limiting, and directional/sequencing valves. Combined into a single centralized integrated circuit, or distributed throughout the machine in function-specific manifolds, HydraForce cartridge products are there to manage and control the many functions.

- Loader control
- Knife grinding control
- Head lift/lower
- Electrohydraulic or mechanical forced steering solutions
- Axle suspension
- Conveyor floor/automatic loading system
- Tailgate
- Tilt and dump



Pressure-compensated reversible conveyor floor control allows even loading and rapid unloading



SF08-28

Solenoid valve, normally closed, double-blocking

Rated flow:

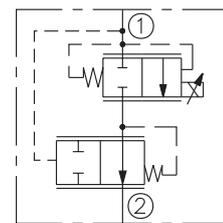
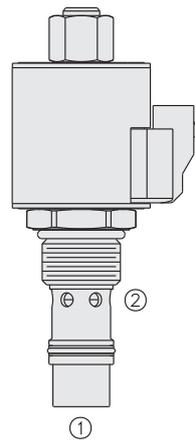
11 lpm (3 gpm) at 345 bar (5000 psi)

19 lpm (5 gpm) at 275 bar (4000 psi)

Rated pressure: 350 bar (5075 psi)

Max internal leakage:

5 drops at 350 bar (5075 psi)



HPV12-20

Proportional flow control, normally closed, spool type, pressure-compensated

Rated flow: 0 to 68 lpm (0 to 18 gpm)

Rated pressure: 350 bar (5075 psi)



Optimise
performance

MORE FLEXIBILITY

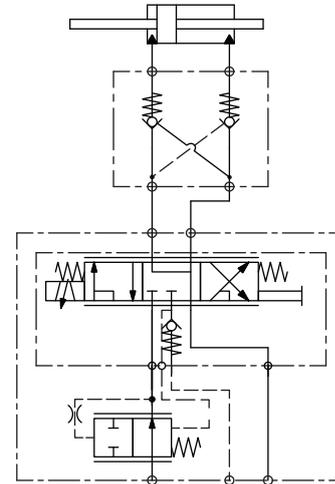
Cartridge valves offer you the most flexibility when designing control systems. HydraForce has the widest range of sizes, operating pressures, function choices, and **space-saving multifunction valves**.

- Independent metering of A and B ports
- Operate with open or closed centre tractor hydraulics
- Simplify piping
- More valve choices
- Combine or distribute controls

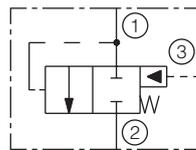
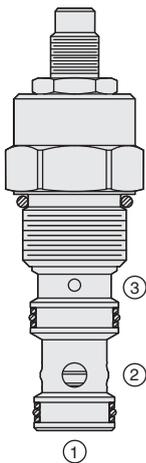
SPRAYERS

Modern sprayers let you squeeze every drop of value from your solution. Precision requires accuracy, reliability, and repeatability from the vehicle hydraulics. At HydraForce, we hang our reputation on precision. With the most sophisticated flow and pressure controls available, your sprayer will perform dependably season after season. Products are available for all vehicle functions:

- Boom fold/unfold
- Precision boom height control
- Boom/axle suspension
- Electrohydraulic steering
- Solution pump control
- Filling pump control



Electrohydraulic steering control allows straight row-tracking yet follows the tractor when turning



EP12-S35M

Piloted spool-type bypass compensator with optional manual override

Rated flow: 151 lpm (40 gpm)

Rated pressure: 345 bar (5000 psi)

MORE PERFORMANCE

In the field, performance is key. Implements that allow **faster operation** without sacrificing precision give you the advantage.

- Valves with Integrated load sensing
- Double-blocking load holding
- Precision pressure controls
- Industry-leading proportional flow controls
- CAN/ISOBUS ECUs and valve drivers

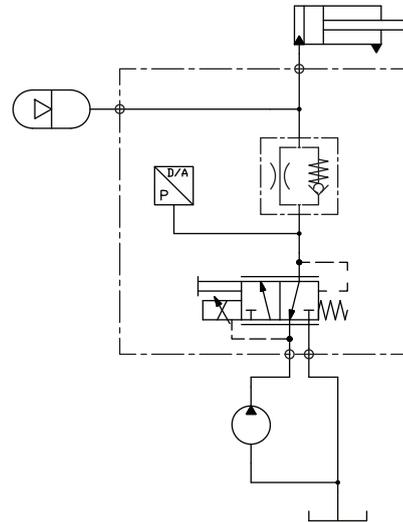


Compact
space saving

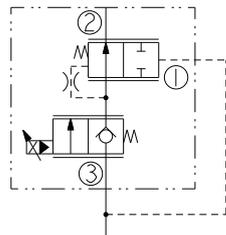
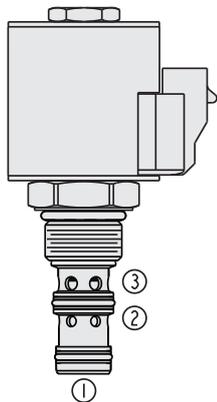
SEEDERS

With a short planting window, seeding machines are getting bigger and are expected to perform at higher speeds. This is where HydraForce gives you the advantage. Our industry leading proportional pressure controls give you the most precise control over coulter pressure to ensure consistent sowing depth in variable soils. You can expect dependable performance with HydraForce cartridge valves for all seeding machine functions:

- Loading/unloading
- Distribution fan
- Vacuum pump
- Fold/unfold
- Downforce control
- Depth control
- Boom float
- Steering



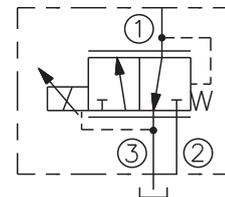
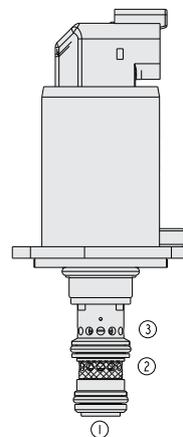
Downforce control ensures proper planting depth in variable soils



HSPEC10-32

Multifunction valve, proportional flow control with integrated pressure compensator

Rated flow: 1.5–40 lpm (0.4–10.5 gpm)
Rated pressure: 350 bar (5075 psi)



EHPR98-G38x

Proportional pressure reducing/relieving valve, drop-in

Rated flow: 19 lpm (5 gpm)
Control pressure at max current:
Option A: 20 bar (290 psi)
Option B: 25 bar (363 psi)
Option C: 30 bar (435 psi)



Increase
productivity

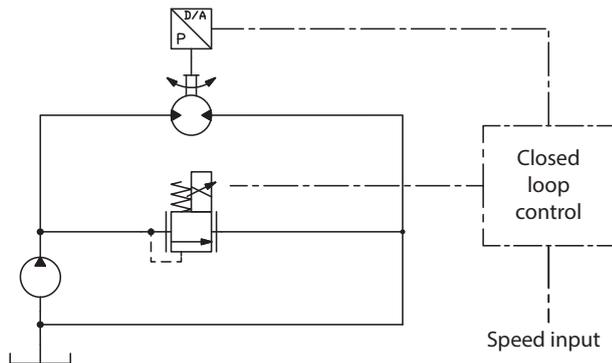
MORE EFFICIENCY

Post-compensated flow sharing allows functions to operate independently and simultaneously **saving time in the field**. Valves sized precisely to the flow needs of the function save space as well as energy.

- Flow sharing
- Right-sized components
- Low internal leakage

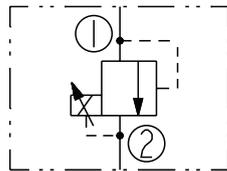
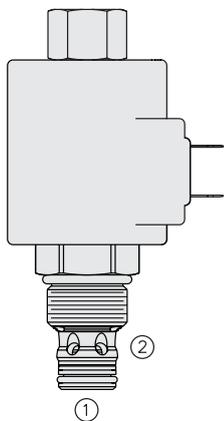
BALERS AND BALER/WRAPPERS

Combi-balers that combine rolling and wrapping save time in the field. Precise pressure controls allow optimum bale density. Torque drive smooths out pressure oscillations in the high inertial load wrapper drive. Post-compensated flow-sharing technology allows baling and wrapping to occur simultaneously with other functions to bale continuously without stopping. HydraForce cartridge valves support all functions:



- Open/close/ejection
- Head lift/lower
- Gathering and cutting
- Precise pressure control for optimum bale density
- Belt drive
- Wrapping

Constant torque control provides smooth operation of bale wrapper



TS10-26

Proportional pressure control, pilot-operated relief

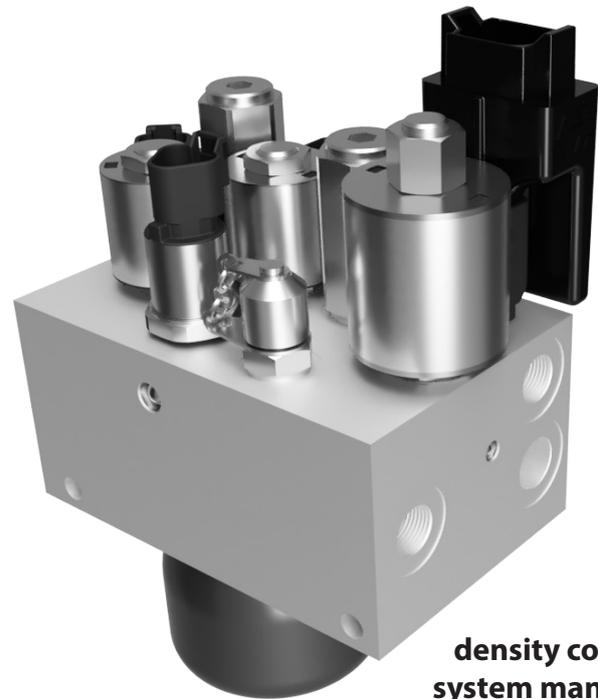
Rated flow: 95 lpm (25 gpm)

Operational relief pressure range:

Range A: 7–207 bar (100–3000 psi)

Range B: 7–159 bar (100–2300 psi)

Range C: 7–117 bar (100–1700 psi)



Bale density control system manifold

MORE RELIABILITY

Precision farming is time-dependent. You've got to make hay when the sun shines, plant when the soil is ready, and harvest before the snow flies. There is no time for downtime.

You can depend on HydraForce quality to be there for you, season after season.



Improve efficiency

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



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

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



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.

The content of this document implies no warranty of merchantability or fitness for a particular purpose. This information provides technical illustration only and is not a statement of suitability for any particular application. Each application is unique and we advise you to conduct your own tests and studies to determine the fitness of our products for your application.

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- Free design support
- Simulation software
- Fast prototypes

