

Scissors Applications

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Steering Systems Needs

- Because flow is at a premium on most scissors lifts, a tandem center spool is needed on the steering directional control to re-combined the steering oil back to the by-pass work port.
- The steering function also uses much lower pressure & flow compared to the rest of the system. This usually requires 2 valves, a priority flow control to limit the flow and a pressure control for limiting pressure in the steering leg.

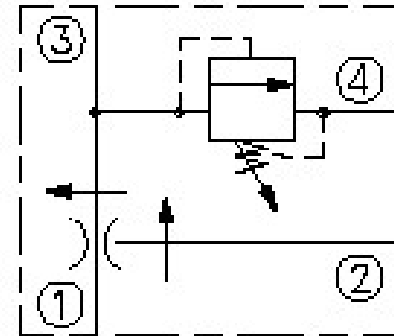
- [HF Steering Solutions](#)





HydraForce Steering Solution

- HydraForce has created a NEW two in one cartridge which combines the priority flow requirement and the pressure control into one cartridge.
 - [FRRV10-41F – catalog page](#)
- For the tandem 3 position 4 way steering directional control we use the HF “A” type spool.
 - [SV08-47A – catalog page](#)
 - [SV10-47A – catalog page](#)





Raise, Lower & Hold System Needs

- This function on most scissors is usually a single acting cylinder with power up and gravity down, which requires a 2 position 3 way valve.
- The gravity down function is usually limited to a fixed speed however, HydraForce can offer a soft shift or proportional version that fits the same cavity.
- A poppet type load holding lower valve is needed.

- [HF Raise, Lower & Hold Solutions](#)

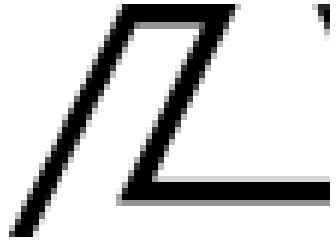




HydraForce Raise, Lower & Hold Solutions

- HydraForce offers a variety of 2 position 3 way valves for the power up function.
 - [SV10-34 – catalog page](#)
 - See HF catalog for other sizes and spool logic
- A poppet type on/off valve is used for load holding and gravity down.
 - [SV10-20 – catalog page](#)
 - Other flow sizes available
- HydraForce can offer a proportional poppet that fits the same 2 way cavity which will offer load holding and proportional down
 - [SP10-20 – catalog page](#)





HydraForce Drive & Brake Solutions

- Most scissors use a spring applied and hydraulic release park brake. HydraForce has a wide variety of shuttle valves that could be used here, connecting the high side of the drive circuit to the park brake.
- To achieve the required drive performance extremes of high grade-ability and travel speeds, the drive motors are switched from series to parallel.
- HydraForce has the widest variety of solenoid and pilot directional controls which allow us to better meet the demands of low cost and low pressure drop series parallel circuitry.



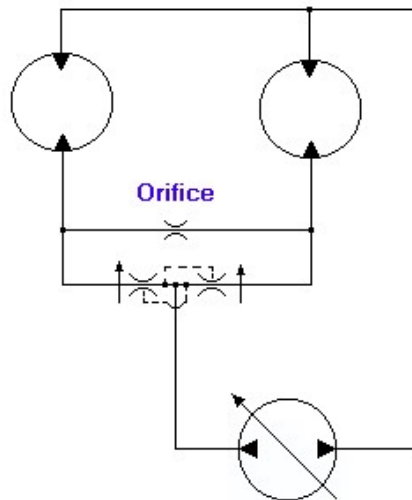


HydraForce 2-Wheel Traction Control Solutions

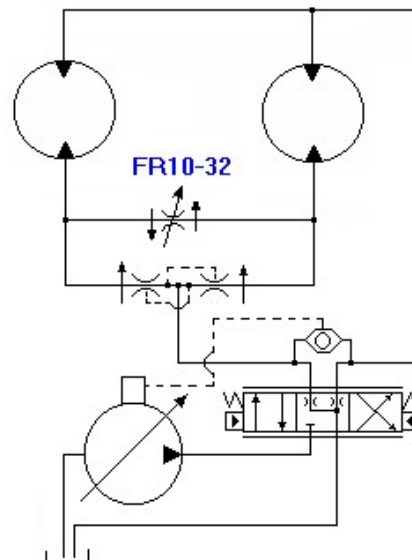
- The new HydraForce heavy duty, higher accuracy flow dividers work effectively in traction control circuits
 - [FD10-44 – catalog page](#)
 - Variety of flow sizes available – see attendant

Traction Control

Closed Loop Two Wheel Drive



Open Loop Two Wheel Drive



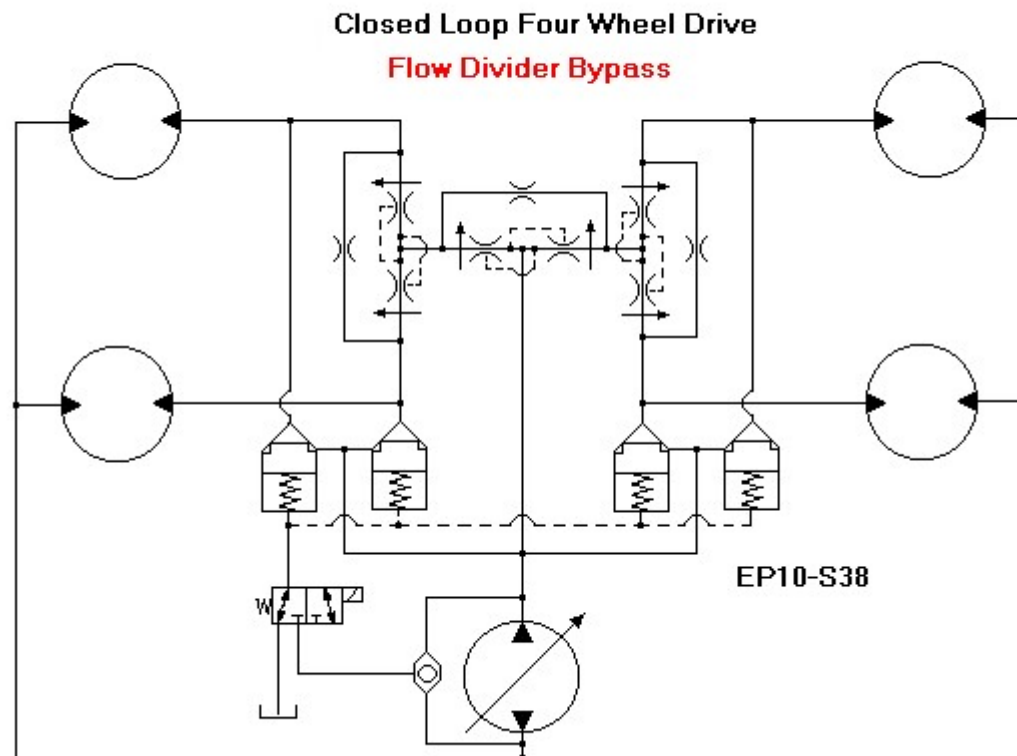
- Touch schematic for Flow Divider operation





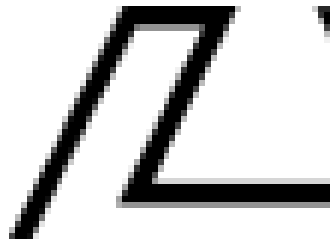
HydraForce 4-Wheel Traction Control Solutions

Traction Control Systems



- Several variations of this type of flow divider circuit are available – see a booth attendant to discuss





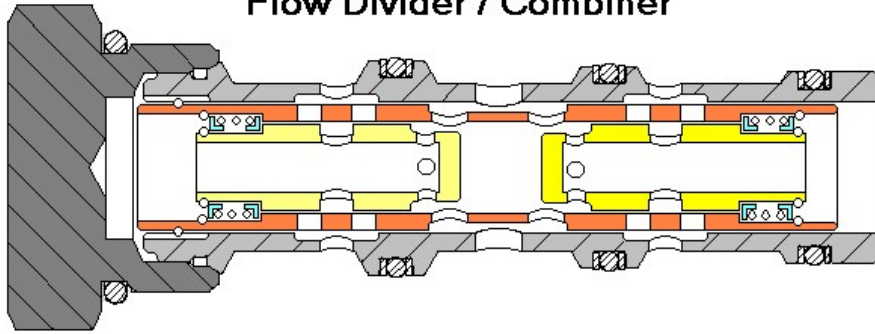
HydraForce Innovation in Traction Control

- HydraForce's NEW PE series meter in & meter out spool configuration lends itself nicely to a four wheel drive traction control system, eliminating the need for flow dividers altogether, thus reducing pressure drop significantly.

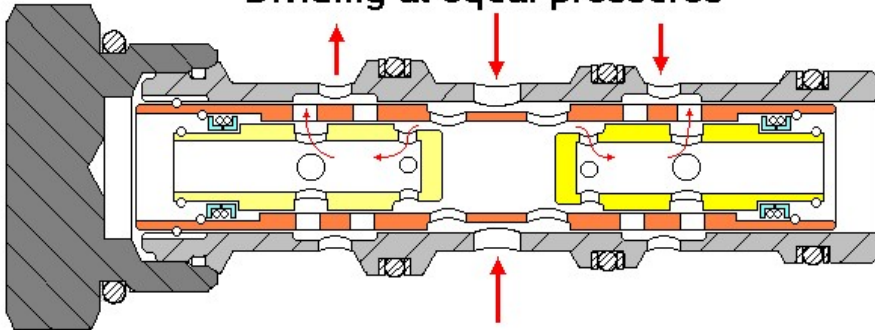
- [PE16-S67C – catalog page](#)
- [EHPR98-T33 – catalog page](#)



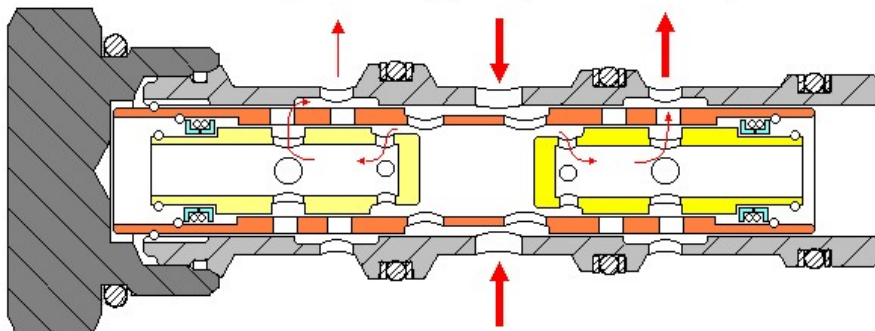
FDXX-44-0-N-XX
Flow Divider / Combiner



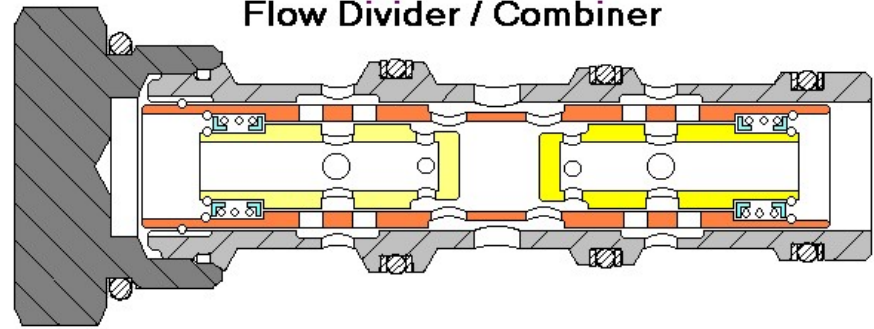
Dividing at equal pressures



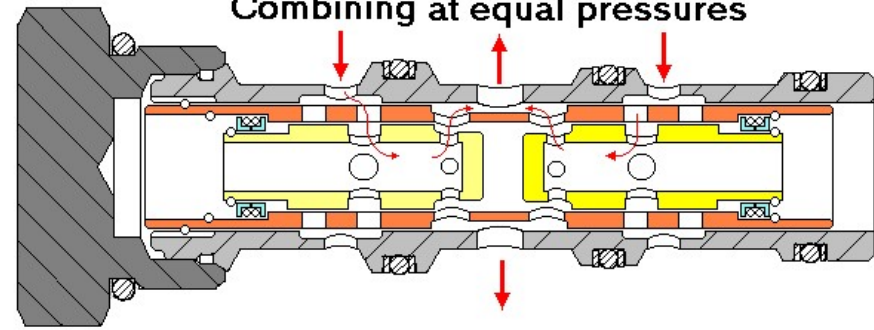
Dividing with higher pressure at port 2



FDXX-44-0-N-XX
Flow Divider / Combiner



Combining at equal pressures



Combining with high pressure on port 2

