

Pressure-balanced Boom Suspension



Description

This is a self-contained hydraulic integrated circuit built to enhance stability and provide dynamic ride control in loaders while travelling with a loaded bucket. The boom suspension systems works with an external accumulator and engages during travel to cushion the boom from jarring shocks and bouncing that can spill the load. This system uses load-balancing technology to keep the accumulator charged at a level dynamically matching the load, and can be disengaged when scooping, lifting, or dragging. It allows smooth engagement and disengagement without the momentary load movement that troubles other systems.

Operation

Solenoid valves SV1 and SV2 connect the boom cylinder(s) piston end (BASE) to the accumulator, and rod end (ROD) to the reservoir through orifice ORF2. Pressure-balance valve PB1 charges the accumulator to the appropriate level based on pilot signal from the boom cylinder(s). Disengaging the solenoid valves isolates the accumulator from the boom cylinder(s), but allows it to continue to maintain a load-based charge when not in use. This prevents unexpected sudden load movement as the system is engaged. Pressure balance valve PB1 also discharges the accumulator as needed to match the load.

Features

- Smoother ride control with the bucket loaded and elevated
- Can be disengaged when lifting, scooping, or dragging
- Secure load-holding
- Load does not move when engaged
- Continually balances the accumulator load
- Suitable for most compact wheel loaders, skid-steer loaders, and tractor/loader/backhoe machines

Ratings

Flow Ratings

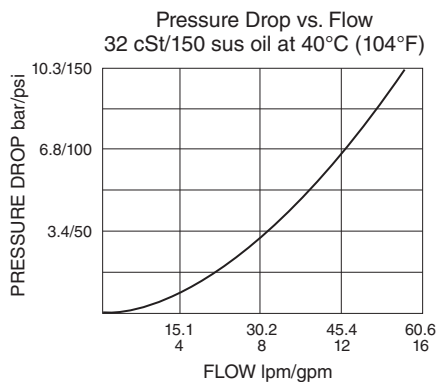
Accumulator Fill: 38 lpm (10 gpm)

Ride Control Exchange: 65 lpm (17 gpm)

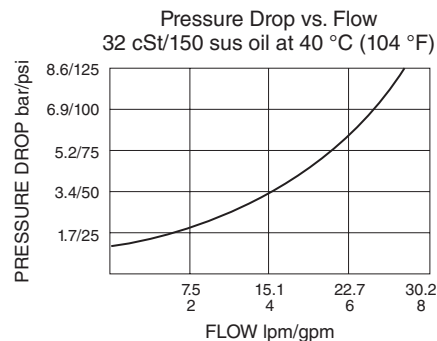
Pressure Rating: 207 bar (3000 psi)

Performance

Accumulator to Base

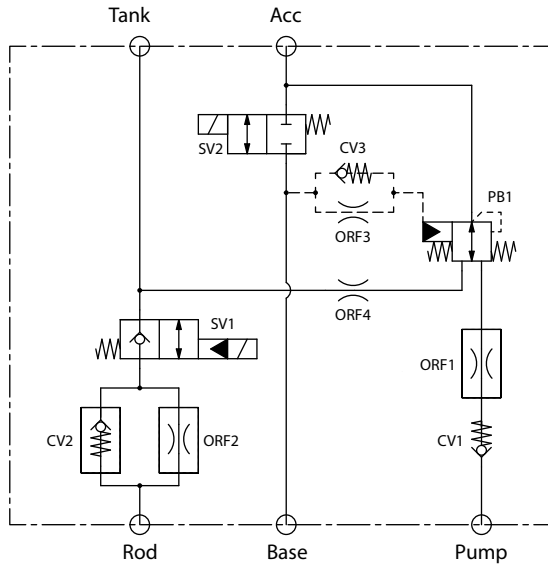


Rod to Tank



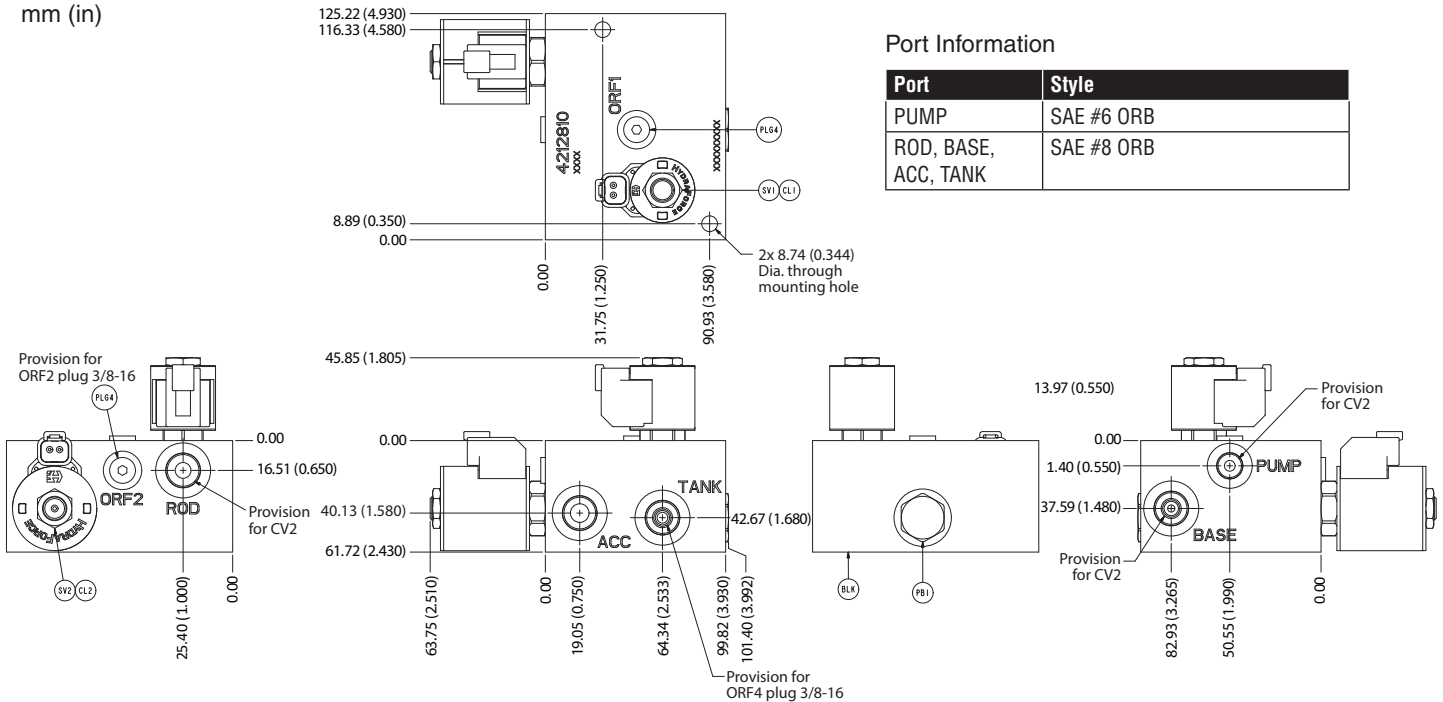
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Schematic Diagram



Dimensions

mm (in)



Port Information

Port	Style
PUMP	SAE #6 ORB
ROD, BASE, ACC, TANK	SAE #8 ORB

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Ordering Information

Note: This manifold is available with the following options.

ES2710-A-BB-CC-DD-EE-FF

A Port option:

T: SAE

B: BSPP

J: JIS

BB Accumulator fill orifice:

00: Omit

35: 2.794 mm (0.110 in)

50: 1.778 mm (0.070 in)

60: 1.016 mm (0.040 in)

CC Accumulator drain orifice:

00: Omit

60: 1.016 mm (0.040 in)

68: 0.7874 mm (0.031 in)

76: 0.508 mm (0.020 in)

DD Suspension damping orifice:

00: Omit

50: 1.778 mm (0.070 in)

60: 1.016 mm (0.040 in)

76: 0.508 mm (0.020 in)

EE Coil voltage:

12: 12 volts

24: 24 volts

FF Coil termination:

EY: Metri-Pack® 150

ER: Deutsch DT04-2P

EL: Leadwires 45 cm (18 in)

EJ: Amp Jr. Timer

EG: DIN 43650