MESP3020F/GASM

This specification describes an electronically controlled hydraulic manifold to control hoist operation and spreader functions. Generally for drop-in spreaders use MESP3020FASM and for tailgate spreaders use MESP3020GASM.

Valve/Manifold Assembly

Vehicle's spreader system circuit and hoist functions shall be controlled by a complete electronic console and valve/manifold package. Groundspeed orientation shall be a standard integrated feature. Components shall consist of in-cab control console, valve/manifold unit, and cable assembly. Design and quality shall be that of Muncie Power Products, part number MESP-3020-F/GASM series. Details of each component as follows:

All solenoid shifted cartridge valves shall have direct acting wet armature operation.

Spreader valves shall be proportional flow controls with infinite resolution from 0 - 8 GPM and 0 - 17 GPM for the spinner and auger/conveyor respectively. Flow sharing shall exist between the hoist and spreader functions for tailgate spreader applications. Independent pressure compensation shall be provided for each with individual cartridge compensator mounted in the manifold assembly.

The hoist control valve shall have ON/OFF functionality and will not be proportional. The hoist control shall be rated to a maximum flow of 6 GPM. The design is intended for double acting hoist cylinders but can be modified for single acting cylinders.

Manifold assembly shall include a relief cartridge assembly screw adjustable from 300 - 3,000 PSI, rated for 30 GPM of through flow. This relief cartridge shall provide isolated spreader system protection. Pump bypass cartridge shall also be part of manifold assembly to provide automatic oil flow unloading.

Manifold circuit design shall include a hydraulic logic shuttle cartridge valve to prevent interactions of spinner and conveyor regardless of independent or simultaneous operations. Logic shuttle shall prevent interaction regardless of load requirements.

Control Console

Electronic operator control console shall be mounted in cab environment to provide easy access for operator use. Console dimensions shall be of approximate size: 4" width, 8" height, and 1.5" depth. Console housing package shall contain all electronic circuits and operator controls. Electronics shall be contained on a printed circuit board format with micro-processor logic.

Operator Controls

Operator controls shall consist of switches, slew controls and displays with the following descriptions:

- Slew Controls shall be used to adjust Auger feed rate and Spinner spread width.

- And shall operate in either Auto or Manual mode.
- Blast condition shall apply when button is depressed and for 5 seconds after release.
- Pause button shall latch until pressed again.
- Digital readout shall display Feed rate and Spinner rate.
- Momentary push buttons shall operate hoist UP and DOWN.

Electronic Operating Logic

Electronic circuitry to perform the following:
Groundspeed Orientation Control - The auto selection causes the hydraulic flow of the auger/conveyor valve to respond proportionally to the truck velocity.
The relationship of the hydraulic flow to the truck velocity (GPM/MPH) shall be adjustable and thereby establish the maximum auger/conveyor speed at the 100% rate selection for any truck velocity 0 -60 MPH. Other rate selections shall be proportionally less.

Valve Enclosure

A powder-coated, mild steel valve enclosure shall provide a dry protected area to house the control valve manifold assembly. Removable lid assembly is to provide a watertight compartment for all valve assemblies. Optional 304 stainless enclosure is available.