Auto & Light Truck Tire Debeader

Information Sheet

Scope

This specification covers all the hydraulic components required to power our Truck Tire Debeader model # BR-2000-B. The components included but not limited to motors, pumps, valves, cylinders, the oil cooling system and necessary accessory equipment. Metal piping and flexible hoses all come under a separate contract. The system will be furnished in two separate components.

1. The three pumps, motors, receiver tank, oil cooler and accessories
2. The valves mounted on two manifolds

General

A hydraulic schematic (drawing #Cr-DB-Hyd-1) is part of this specification. The bidder may offer modifications or additions that will achieve reductions in cost or improvements in the system.

Pumps

The pumps are variable volume, pressure compensated type and provide quick response to changing flow requirements. They are flange mounted to the TEFC electric motors. The direction of rotation will be clearly marked on the top side of each pump.

There will be two 50 gpm pumps @ 1500 psi minimum using 60 hp each, mounted on a common steel base with the oil tank. These pumps feed the main valve manifold which in turn supplies the two hook cylinders, the ejector cylinder and elevator cylinder.

Also one 15 gpm pump @ 1200 psi minimum using a 15 to 20 hp TEFC motor will be mounted on a shelf or stand in a location that does not obstruct access to the other pumps. This pump will feed the secondary manifold and supply the terminal and tire feed conveyor motors and trap door actuator.

Operation is approximately 71.5 kilowatts per hour.

Hydraulic Motor

The terminal conveyor motor is based on a CharLynn motor requiring 2.8 cubic in. per revolution at 1200 psi at 304 rpm giving 429 in/lb of torque or 2+ hp. The motor will have a keyed straight shaft and C face or flange mount to mesh with the selected reducer. An alternate equal will be considered.

The tire feed conveyor motor will be the same as above but rated for a torque load after reduction of 675 ft. lbs. to drive a 16 inch diameter lagged pulley at 30 RPM (or 3 HP). The shaft mounted reducers may be supplied with other equipment.

Valves

The solenoid control valves are to be mounted on two manifolds and supplied separate from the power unit. Each attached to a special rack on the side of the debeader by Wolverine. The primary manifold will be sized to pass 100 gpm flow to the three largest cylinders. The secondary manifold sized to pass 20 gpm flow to all other components. The valves are sized to provide the correct volume required.

Valves that control the cylinders:

Are double solenoid energized and pilot operated. The solenoids are designed for 120V, single phase, 60 Hz. They have a means of manual operation (such as a push rod). Each have deceleration adjustments (throttled spool control) for each direction. The valve bases for the ejector, elevator and trap door cylinders (only) also have flow controls for each direction.

Valves that control the conveyor motors:

Are single solenoid energized and pilot operated. The solenoids are designed for 120V, single phase, 60 Hz. It can be manually operated with a tool such as a push rod. They have flow control adjustments for the one direction.

Cylinders

1. All cylinders rated for heavy duty service at a minimum 3000 psi.
2. All cylinders cushioned at each end.
3. The front flange mounted cylinders have the largest std. sq. size flanges. Clevis mounted cylinders furnished with base mounting brackets and rod eyes with pins at each end.
4. Cylinders required:
    - Hook Cylinders – two- $3^{1/4}$" x 38" – $1^{3/8}$" di. Rod, with #16 SAE ports, flange mount.
    - Ejector Cylinder – one $2^{1/2}$" x 31" – $1^{3/4}$" di. Rod, #12 SAE ports, flange mount & rod end flex coupler
    - Elevator Cylinder – one $1^{1/2}$" x 16" – 1" di. Rod, #10 SAE ports, clevis mount
    - Trap Door Cylinder –two $1^{1/2}$" x 10"- 1" di. Rod, #10 SAR ports, clevis mount

Oil Reservoir

The oil reservoir is sized to provide adequate oil for the operating components and to keep the oil temperature in a safe range. Constructed of mild steel with a gasket sealed removable top. It will be mounted on a heavy structural steel base with adequate space for the two main and secondary motor-pump sets. Each will need sufficient clearance underneath to allow for lift truck access. Four lifting lugs are provided.

Locate all hydraulic and electrical ports (connection points) for easy access during installation and maintenance.

Oil Cooling

A fan cooled oil heat transfer system is used unless otherwise specified. When sizing the customers plant location with highest mean temperature and altitude must be considered.

Electrical

All electrical enclosures, boxes and connections are NEMA type 4 weatherproof.

Dimensions

The unit, excluding conveyor belt, is 11’ 4” high, 20’ long, and 6’ wide.

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