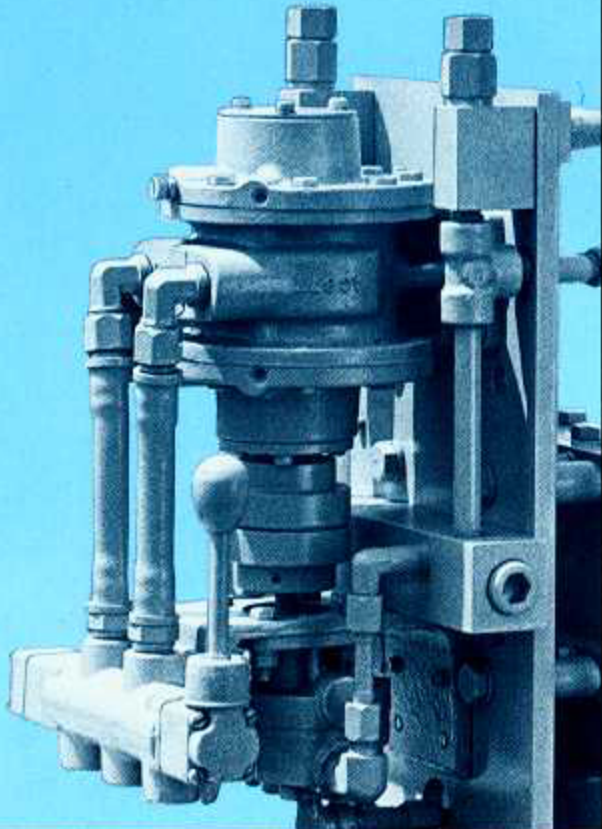


# Shafer™

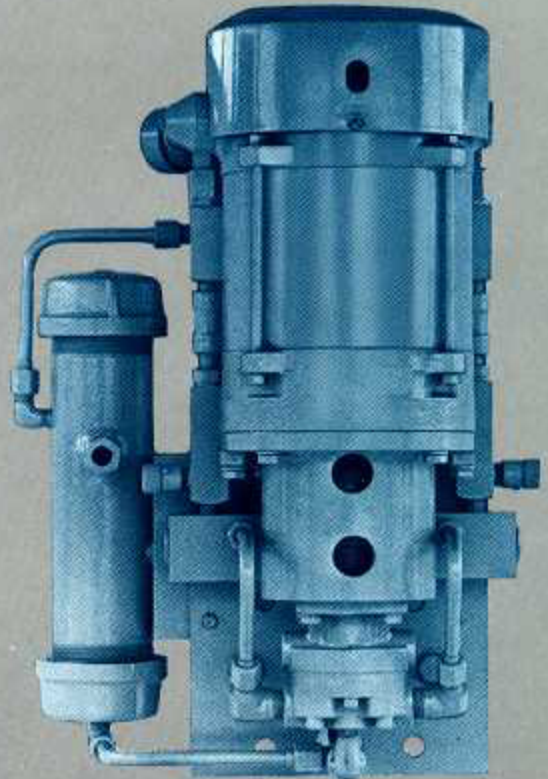
BULLETIN HPS-220

## SELF-CONTAINED HYDRAULIC POWER SYSTEMS

**AIR MOTOR POWER PACK** — for the intensification of low pressure pneumatic power supplies. Turns 100 psi air or gas supply into 2000 psi hydraulic power pressure.



**ELECTRO HYDRAULIC POWER PACK** — to provide up to 2000 psi hydraulic power pressure to operators where a pneumatic power source is unavailable, or where electrical power is preferred.





# THE AIR MOTOR POWER PACK

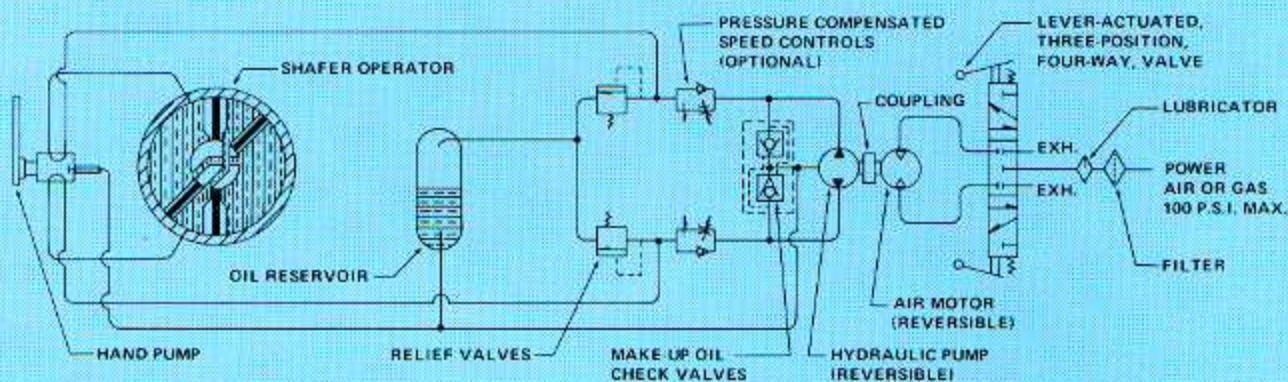
Where pneumatic power supplies are low, yet torque or thrust requirements are high, the Air Motor Power Pack can be utilized to boost a 100 psi air or gas supply to 2000 psi hydraulic power pressure. The unit is readily adaptable to either the Shafer Rotary Vane Type Operator, or the Shafer Linear Valve Operator. Because the Shafer Valve Operator boasts only one basic moving part to impart torque or thrust directly to the valve stem, your expected maintenance is kept to a minimum.

## HERE'S HOW THE AIR MOTOR POWER PACK WORKS:

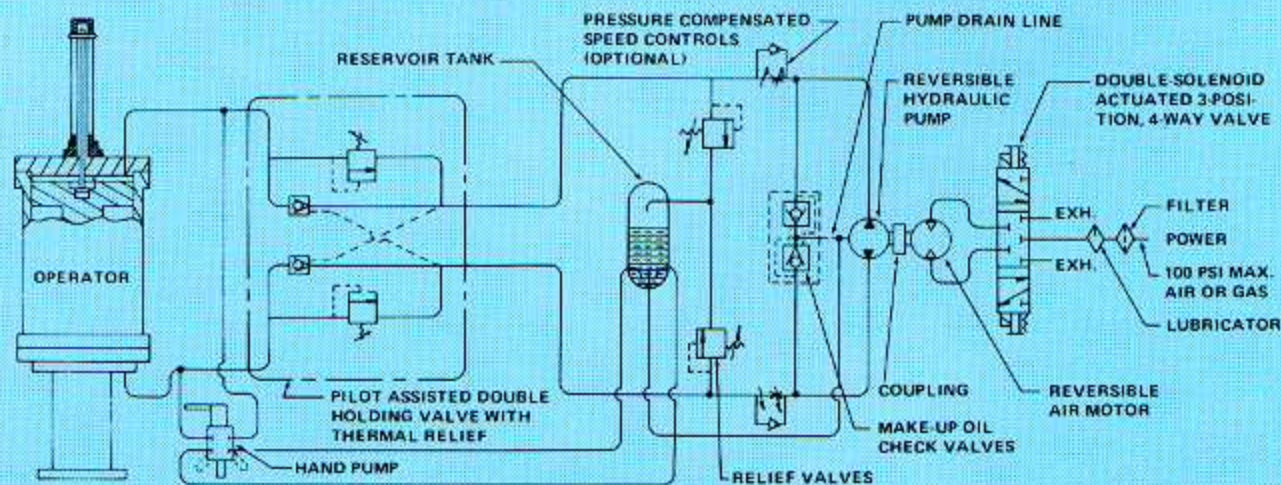
The maximum 100 psi air or gas supply is ported to the directional spool valve control. Whether using the man-

ual lever actuated, the remote two-way electric solenoid actuated, or the remote two-way pneumatic piston actuated control valve, the power supply is directed to the air motor to determine the direction of motor rotation. The air motor, by means of a flexible coupling, drives a positive displacement hydraulic gear pump which draws hydraulic fluid from the reservoir and discharges it into the operator at pressures up to 2,000 psi. As the operator begins to move, the resident hydraulic fluid is forced out of the operator's opposite port and into the reservoir. By actuating the control spool valve in the opposite direction and reversing the air motor and pump, the operator function is reversed.

Illustrated here are schematics of the (figure 1) Rotary Operator with the manual lever actuated air motor power pack, and (figure 2) the Linear Operator with the two-way electric solenoid actuated air motor power pack. Also available is a two-way pneumatic piston actuated version. Pressure compensated speed controls are available as options.



(figure 1)



(figure 2)



# THE ELECTROHYDRAULIC POWER PACK

To provide up to 2000 psi hydraulic power pressure when a pneumatic power source is unavailable or where an electric power source is preferred . . . The Shafer Electrohydraulic Power Pack can be utilized especially on production lines in petrochemical and power generation plants, or on any liquid handling transmission line.

The Electrohydraulic Power Pack Concept is the same as the Air Motor Power Pack except that an "off-the-shelf" explosion proof reversible electric motor is utilized in place of the air motor.

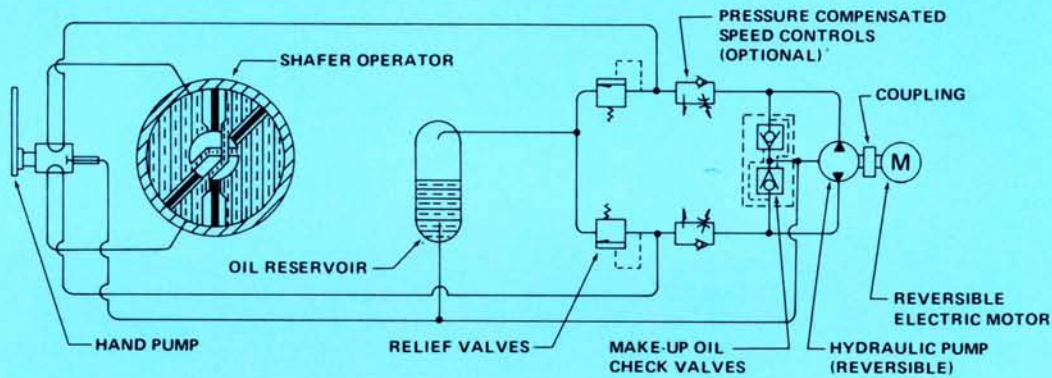
In either case the supply power requirements are low, and—due to the design—constant minimal motor loads are maintained even at peak break-away periods.

## HERE'S HOW THE ELECTROHYDRAULIC POWER PACK WORKS:

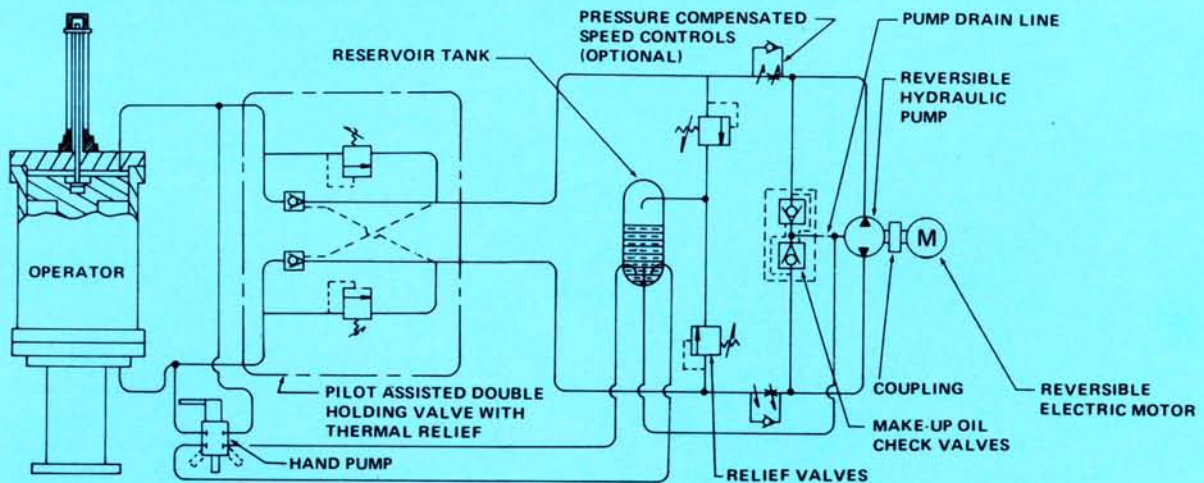
The explosion proof reversible electric motor, by means of the flexible coupling, drives the reversible positive displacement hydraulic gear pump. The pump draws hydraulic fluid from the reservoir and discharges it into the operator at pressures up to 2000 psi. As the operator begins to move, the resident hydraulic fluid is forced out of the opposite port of the operator and into the reservoir. Electrical limit switches serve to break the electrical circuit at the end of the operator's stroke. By reversing the rotation of the motor, the operator function is reversed.

Pressure Compensated Speed Controls, reversing motor starters, and local push button controls are available as options.

Illustrated here are schematics of the Rotary (figure 3) and Linear (figure 4) Valve Operators with the electrohydraulic power pack.



(figure 3)



(figure 4)



### CONSIDER THESE ADDITIONAL ADVANTAGES:

**EASY INSTALLATION**—The Power Pack/Valve Operator is self-contained and designed for compactness and ready adaptability to new or existing valves. The valve need not be taken out of service during installation.

**NO GEARING**—Shafer Power Pack Operators provide full, direct power to the valve stem eliminating costly, power absorbing gearing and troublesome clutch slippage.

**EASILY CONTROLLED OPERATING SPEED**—The operating speed is controlled through optional adjustable hydraulic flow control valves. This enables field personnel to easily alter operator speed to comply with actual field conditions.

**RUGGED CONSTRUCTION**—Because all Shafer products are ruggedly designed in nature and constructed of extra-heavy walled material, only minor modifications were required to design an ultra-high pressure valve operator that is tested to 3000 psi and rated at 2000 psi working pressure. Each operator is constructed of high quality steel plate, and ground to precision tolerances for maximum strength and efficiency.

**ADJUSTABLE RELIEF VALVE FOR OVERLOAD PROTECTION**—Incorporated into the design of the power pack hydraulic system are adjustable relief valves to ensure tight valve closure, and protect important valve parts from damage.

**EMERGENCY OPERATION**—The power pack valve operator can be actuated in the event of power gas or electric failure by the emergency manual hydraulic hand pump on all units.

**CUSTOM ENGINEERING**—General specification sheets and dimensional data forms are available for use in selecting the specific operator for your application. Information is also available on the various control systems that provide automatic or remote control. In addition, Shafer provides a complete Custom Engineering Service to assure you that your valve operator requirements are met precisely.

Shafer Valve Company, 2500 Park Avenue West, Mansfield, Ohio 44906, Telephone: Area Code (419) 529-4311, TWX Number: 810-448-2818

Whatever your application—compressor, meter, or regulating station, distribution systems or transmission lines; refineries, petrochemical or power generation plants, or marine applications—Shafer has a rugged and reliable valve operator to do the job.

