

RELIEF VALVES

APPLICATION

Since all hydraulic equipment is designed for a specific maximum operating pressure, the function of a relief valve is to protect the system against undesirable pressure build-ups and excessive structural loads. Relief valves are usually installed facing the system pressure with outlet port connected to a return line.

Pressure differential relief valves are sensitive to back pressure and therefore normally not used when high pressure build-ups in the return system can occur. When limitation and control of excessive pressures are required at intermediate points of the system, balanced type relief valves are used. These valves are generally referred to as Priority Valves, and being internally balanced to back pressure, their operation is unaffected by downstream pressure build-ups.



DESIGN CHARACTERISTICS

Suitable for in-line applications or installation in modules with other valves or as part of larger assemblies. Stainless steel working parts for corrosion and wear resistance.

Springs used are usually made of 17-7PH CRES to withstand high loading stresses for minimum weight. Also, springs are shot peened, if required, to improve fatigue strength and performance.

DESIGN CHARACTERISTICS

To maintain constant pressure setting during temperature changes from -65° to $+275^{\circ}\text{F}$, all internal working parts made of material especially selected for the smallest coefficient of expansion available.

For long and failure free service life, the seat end poppet is made of highly hardened corrosion resistant steel.

A very unique “artificial lift” design feature developed exclusively by Arkwin, uses the dynamic forces of the fluid flow to raise the poppet high off its seat to achieve a wide effective flow orifice within a small valve envelope. As a result, Arkwin’s valves are of smaller size than envelopes per MS28887 and exceed the flow requirements.

PERFORMANCE DATA

Arkwin’s basic line of relief valves has been qualified to MIL-5523, MIL-V-8813 and to many stringent customer specification requirements.

Originally designed to MIL-H-8775, Type II systems, and MIL-H-5606 fluid, but can readily be modified to suit higher temperature and other fluids by use of different seal compounds.

Although point-set to suit customer’s particular pressure requirements, a much wider range can be attained by re-adjustments or change of springs. Full flow pressures range from 100 to 5000 psid with 0.5 to 32 gpm.

Arkwin relief valves are very stable and quiet in operation by the use of very efficient hydraulic damping and guiding features. Extremely high reliability record has been proven by a trouble free service history of many thousands of Arkwin valves. Usage spans from the F-84 to the CH-53K and many aircraft in between including C-130, F4, and more.