

1. BASIC DEFINITIONS AND STANDARD TERMINOLOGY.

1.1 Accumulator - A device for storing fluid energy.

1.1.1 Diaphragm Type - An accumulator in which fluid energy is stored by compression of a gas or spring which is separated from the working fluid by a flexible diaphragm.

1.1.2 Bladder Type - An accumulator similar to the diaphragm type, except that the gas and working fluid separation is effected by a bladder or balloon inside the external wall.

1.1.3 Piston Type - An accumulator in which the working fluid acts on one side of a piston inside a cylinder, with gas or spring forces acting on the opposite side of the piston.

1.2 Cylinder, Actuating - (Sometimes called "Jack", "Ram" or "Strut".)
A linear motion device in which the thrust or force is proportional to the effective cross sectional area and the pressure differential.

1.2.1 Single-Acting - A cylinder in which fluid pressure is introduced in one end so that fluid force is exerted in one direction only. Gravity, spring forces, or other means are used to accomplish the return stroke.

1.2.2 Double-Acting - A cylinder with provisions for applying fluid pressure to both ends, and thus capable of exerting a force in either direction.

1.2.3 Fixed End - A cylinder which is held in a rigid position.

1.2.4 Rotating End - A cylinder mounted to permit limited rotary movement about a fixed point.

1.2.5 Swivel End - A cylinder with one or both ends provided with a joint which not only allows oscillation of the cylinder but which also incorporates stationary fluid connections.

1.3 Divider, Flow - A device which divides the flow entering the unit into pre-determined proportions which are relatively unaffected by pressure variation at the outlets.

1.4 Filter - A device which removes solids from a fluid.

1.4.1 Line Type - A filter which is installed directly in a pressure line and is capable of withstanding full system pressure.

1.4.2 Reservoir Type - A filter installed in low pressure return or suction lines.

1.4.3 Vent Type - A filter installed in a reservoir vent line.

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- 1.5 Flow, Rated - The flow at which a unit or system has a specified performance or characteristic.
- 1.6 Fluid, Working - The medium or fluid to be used in a unit or system.
- 1.7 Fuse, Hydraulic - A device which shuts off flow in a line or lines in the event of line breakage downstream from the unit.
- 1.7.1 Return Flow Type - This type shuts off flow in both pressure and return lines when the ratio between the flows in the two lines changes beyond the setting of the unit.
- 1.7.2 Metering Type - This type shuts off flow when more than a pre-determined quantity of fluid has passed through it.
- 1.8 Gland - The device or parts used to seal or prevent fluid flow from one chamber to another at the point where a shaft or piston enters the chamber.
- 1.9 Line - A tube, pipe, or hose which acts as a conductor of the working fluid.
- 1.9.1 Line, Drain - A line returning leakage oil independently to the reservoir or low pressure return line.
- 1.9.2 Line, Return - A line which carries working fluid back to the reservoir.
- 1.9.3 Line, Pressure - A line which conducts fluid from the pressure source to a control unit.
- 1.9.4 Line, Pilot - A line which acts as a conductor of control actuating fluid.
- 1.10 Motor - A device for converting fluid energy into mechanical energy in the form of rotary motion of a mechanical member.
- 1.11 Pattern, Flow - The paths of fluid flow connecting various ports in a given valve position.
- 1.12 Position, Valve - The position of the valve mechanism which determines the flow pattern.
- 1.13 Port - An opening at a surface of a component (i.e.: terminus of a passage.) It may be external or internal.
- 1.14 Pressure Drop - The net reduction in fluid pressure between given ports of a fluid control unit at a given flow. This does not include the loss in fittings installed in the ports.
- 1.14.1 In the case of a 4-way selector valve, the pressure drop is the sum of the pressure drops occurring between pressure and "Cylinder 1" port and between "Cylinder 2" and the "Return" port.

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- 1.15 Pump - A device for converting mechanical energy into fluid energy.
- 1.15.1 Fixed Displacement - A pump whose delivery at a fixed RPM and output pressure can not be varied, and which delivers a relatively constant volume of fluid per cycle.
- 1.15.2 Variable Delivery - A pump whose delivery can be controlled independently of RPM or output pressure by varying the output volume per cycle.
- 1.15.2.1 Mechanical Volume Control - A pump whose output is controlled by external means.
- 1.15.2.2 Pressure Volume Control - A pump whose volume is controlled by the discharge pressure.
- 1.16 Regulator, Flow - A valve which limits flow in a line to a maximum value, irrespective of variation in pressure differential caused by back pressure or working against load.
- 1.17 Schematic - A flow diagram of a fluid unit or system of units including all inter-connections.
- 1.18 Surge - A transient rise of fluid pressure in a system.
- 1.19 Switch, Pressure Actuated - (Pressure Switch) A device which opens or closes an electrical circuit at a given fluid pressure.
- 1.20 Torque, Valve - The maximum actuating moment required at given fluid pressure to move the valve mechanism from one position to another. In the case of a 4-way selector valve, of the closed center type, torque is to be determined with a given pressure applied on both the pressure port and one of the cylinder ports simultaneously.
- 1.21 Valves
- 1.21.1 Check Valve - A valve which allows free flow of fluid in one direction only, but prevents flow in the opposite direction.
- 1.21.1.1 Manual Check Valve - A two position manually operated valve which functions as a standard check valve in one position, but permits free flow in both directions when actuated to the other operating position.
- 1.21.2 Control Valves
- 1.21.2.1 One-way Shut-off Valve - A 2-port, 2-position valve that can shut-off pressure from one direction only.
- 1.21.2.2 Two-way Shut-off Valve - A 2-port, 2-position valve that can shut-off pressure from either or both directions.

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- 1.21.2.3 Two-way Selector Valve - A 3-port, 2-position valve with the following flow patterns:
- Position 1 - "Pressure" port connected to "Cylinder" port; "Return" port blocked.
- Position 2 - "Cylinder" port connected to "Return" port; "Pressure" port blocked.
- 1.21.2.4 Four-way Selector Valve, 2-Position - A 4-port, 2-position valve with the following flow patterns:
- Position 1 - "Pressure" to "Cylinder 1", "Cylinder 2" to "Return".
- Position 2 - "Pressure" to "Cylinder 2", "Cylinder 1" to "Return".
- 1.21.2.5 Four-way Selector Valve, 3-Position, Closed Center - A 4-port, 3-position valve with the following flow patterns:
- Position 1 - "Pressure" to "Cylinder 1", "Cylinder 2" to "Return".
- Position 2 - All ports blocked except "Return".
- Position 3 - "Pressure" to "Cylinder 2", "Cylinder 1" to "Return".
- 1.21.2.6 Four-way Selector Valve, 3-Position, Open Center - A 4-port valve with flow pattern identical to closed center, 3-position, except in position 2, "Pressure" is connected direct to the "Return" port in place of being blocked. A 5th port is sometimes provided as a case drain.
- 1.21.2.7 Four-way Selector Valve, 3-Position, Closed Center - With Open Cylinder Ports - A 4-port valve identical to that of Para. 1.21.2.5 except that in position 2 the "Pressure" port is blocked and both "Cylinder" ports open to "Return".
- 1.21.2.8 Four-way Selector Valve, 3-Position, Open Center With Open Cylinder Ports - A 4-port valve identical to that of Para. 1.21.2.6 except that "Cylinder" and "Pressure" ports are connected to "Return" in the neutral position. (Position 2)
- 1.21.3 Pressure Maintaining Valve (Balanced Relief Valve) - A relief valve which is subject to the pressure differential between the inlet port and atmosphere rather than between the inlet and outlet ports.
- 1.21.4 Pressure Reducer - A valve which reduces any inlet pressure to a pre-determined maximum outlet pressure regardless of flow or inlet pressure.
- 1.21.5 Relief Valves - A valve automatically releasing pressure higher than its setting.