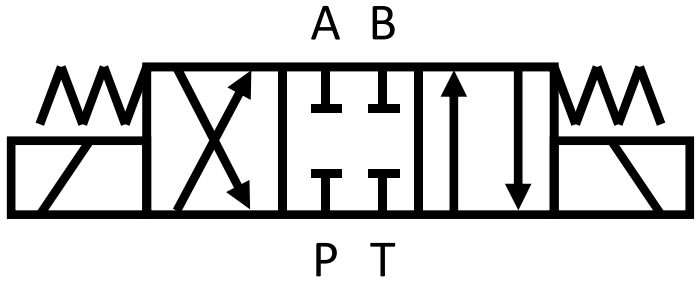
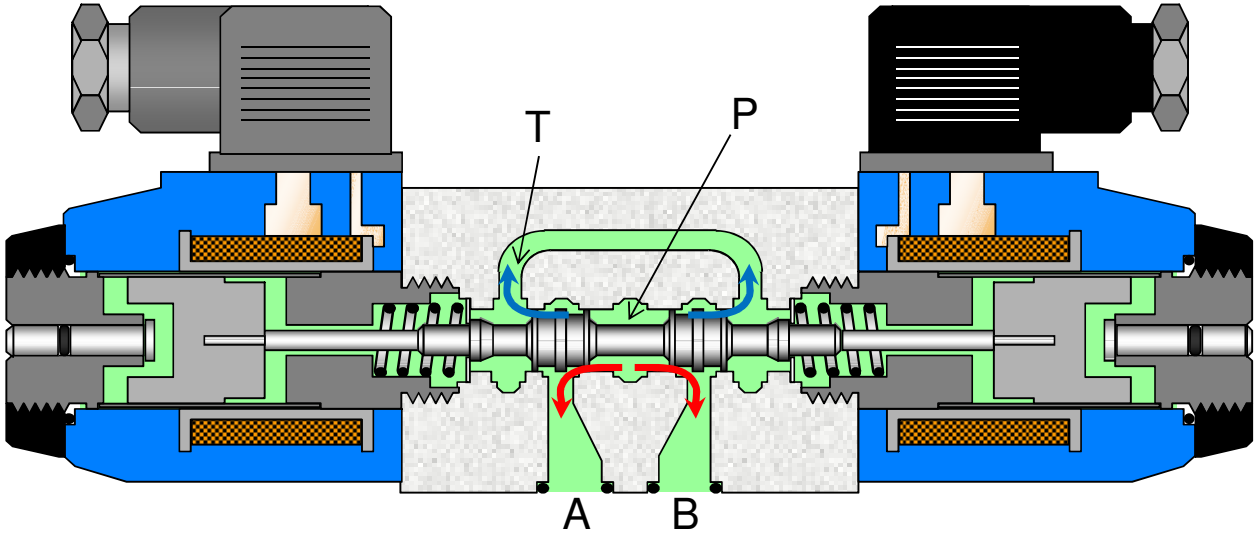
Symbol for DCV with “cylinder” spool:



Representation of physical construction of a spool type DCV with a “cylinder” spool:



Internal leakage paths shown as:
P to A, P to B →
A to T, B to T →

Equivalent hydraulic circuit of the inside of the spool type DCV:

1) Each internal leakage path is represented by an orifice.
2) When the A & B ports are blocked (such as when connected to a cylinder) there can be no leakage out of these two ports. The valve leakage flow path is therefore P→A → T and P → B → T.
3) If all the leak paths have the same resistance then the resultant pressure at A and at B will be half the difference between P and T because the identical resistances act as a kind of potential divider.
4) If T = zero then the pressure at A and at B will eventually rise to half the system pressure (P).
5) Equal pressure applied to both ports of a single rod cylinder will cause the rod to extend – the speed will be low because of the tiny flow rates.