

order to allow the valve to reseal in the same configuration. The cage presents also a seal on the outer diameter, which acts between the cartridge and the cavity and prevents oil leakage from P to T. The pressure at port P acts on the influence area A of the poppet, generating a force opposite to the spring force. The upper face of the cap is threaded in order to house the manual spring adjustment mechanism, allowing the user to adjust the spring preload by changing the spring length. The valve cage presents a seat with a reduced diameter, which is normally held in contact with the conical portion of the poppet by the spring. This type of valve is normally used in manifolds, where the valve is threaded into a cavity machined in the block. Thus, the functioning of a pressure relief valve is described by two states: – valve closed, when $p < p^*$ – valve regulating, when $p \geq p^*$ The upper face of the poppet is shaped in order to function as a guide for the valve spring, which is contained in a hollow cap. The adjustment screw is held in place by a lock-nut, which prevents the undesired effect of vibrations that can cause retention problems. In Figure 8.8, this is done through the axial and radial holes machined in the poppet.