

Mechanical Power clamping screws I Series MSP/MSPD

Design and function

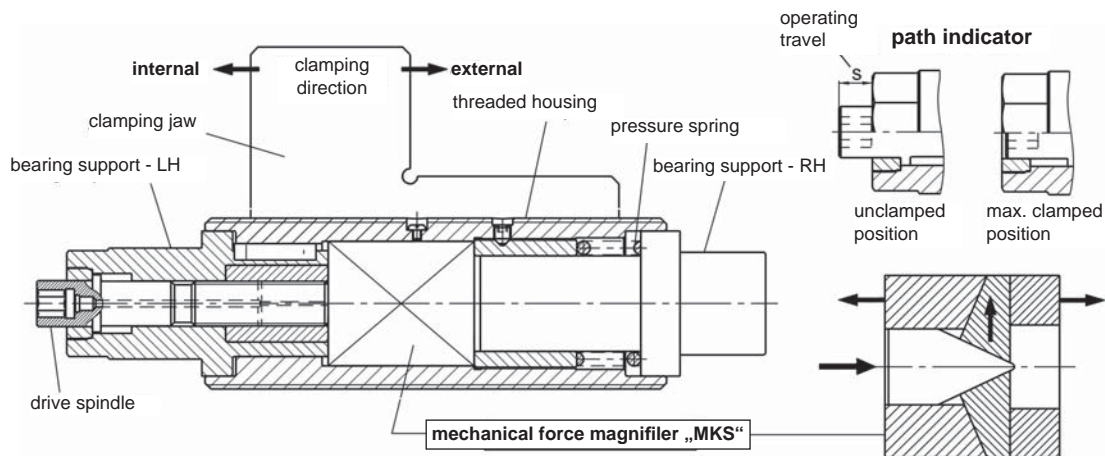
The single acting Mechanical Power Clamping Screws of the series "MSP" have been developed for external clamping only, where as the double acting ones of the series "MSPD" for external (shafts, rollers) as well as internal clamping (pipes, bushes). These mechanical power clamping screws are equipped with a "forced in key" system type "MKS" as force magnifiers. The double acting version is equipped with an automatic changeover mechanism. This system generates high clamping forces with a simple operating procedure requiring low manual initiating torque or starting torque.

The state of the art "forced - in key" system is extremely robust and is self locking in every clamping stage. The high system stiffness achieved thus increases also the operational safety. No additional mechanical safety devices or supports are required for supporting the threaded power clamping screws.

Working over the "forced - in key" system an axial displacement of a pressure piece is made which presses the threaded power clamping screws along with the jaw against the work piece, and generates a clamping force proportional to the initiating torque.

By changing the load direction from "external" to "internal"; the clamping direction within the force magnifier automatically changes without the need to undertake an additional reversal of the clamping direction by hand. Correspondingly the clamping forces are passed on further; depending on the direction of clamping into the left-bearing (LH) or support with external clamping, or in the right-bearing (RH) or support with internal clamping.

The reversing motion of the force magnifier and threaded power clamping screw is compensated by a compression spring which functions at the same time also as a pull back spring during unclamping.



Operating:

External clamping

The clamping jaw approaching the workpiece, is prealigned and pretensioned by turning the external hexagon SW1 with the aid of a ring or other wrench. A torque wrench should be used for force clamping and fine adjusting. By turning the internal hexagon SW2 in clockwise direction, the drive spindle is activated and a clamping force is generated proportional to the starting torque until the torque wrench disengages upon reaching the preselected torque (see clamping force diagram). The clamping stroke can be controlled via a operating path indicator.

The clamping procedure has to be repeated by slacking with SW2 and a possible pretensioning with SW1 if the preselected starting torque has not been attained until the end of the operating path. Avoid exceeding the maximum starting torque as it may cause damages.

Internal clamping

The clamping jaw approaches the workpiece, is prealigned and pretensioned by turning the external hexagon SW1 in an counter-clockwise direction with a ring or other wrench. This automatically activates the change-over to internal clamping. For this changeover the threaded housing of the power clamping screw with the jaw is maintained in a preloaded state and then subjected to an axial motion in the reverse direction, i.e. the external hexagon SW1 should be turned by approx. one turn additionally. The power clamping with internal hexagon SW2 is then done in a similar manner as the external clamping procedure.

Release

Release is effected in reverse order. By turning the hexagon SW2 in an counter-clockwise direction until the rear stop.

The drive spindle is reversed and the clamping system unclamped. The pressure spring pushes the threaded spindle with clamping jaw back, the force amplifier returns to its initial position.