

# Hydro-mechanical spring clamping systems\_\_\_\_Series ZSF/ZDF

- mechanical clamping - hydraulic releasing
- high operation safety, leakproof and robust
- economical clamping solution

## General

The piston assembly (pulling or pushing version) is subjected alternatively to the cup spring force or hydraulic pressure. This means that the cup spring packet is compressed more with increasing pressure. The hydraulic pressure is required only for the release stroke of the elements whereby the pull stud/pressure piece is released.

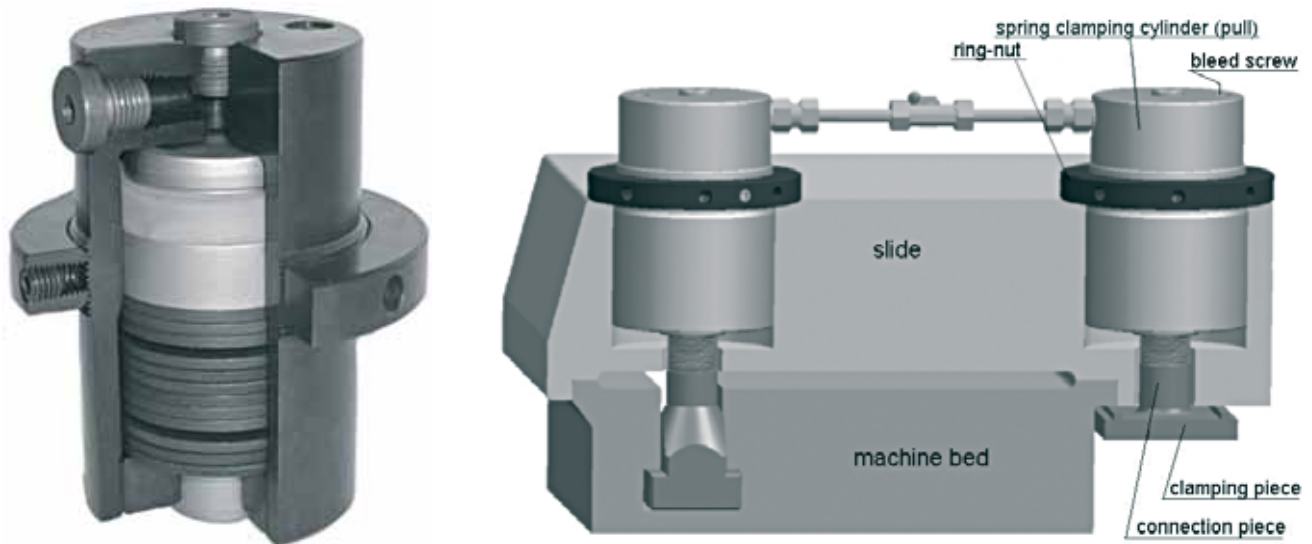
This System ensures a very high factor of safety since the clamping force generated is independent from the oil pressure and from pressure loss due to leakage.

The full clamping force remains constant at all times. The short operating cycle times of the hydraulic power pack additionally save on costs and make it more economical. The spring clamping cylinders of the series ZSF and ZDF are robust and reliable elements which can be used in all applications where moveable machine parts (eg. fixtures, dies etc.) need to be clamped or locked into position. They are also used in workpiece and tool clamping operations.

## Principal of Operation

The piston (push or pull) is subjected alternately to cup spring force or the hydraulic pressure. This means, that as the spring assembly is pressed together with increasing pressure, the spring force increases. At setting pressure, the appropriate nominal clamping force is achieved as reaction force of the cup spring assembly. For release (push or pull), a higher hydraulic pressure is required, which is proportional to the release stroke up to a maximum value.

The appropriate pressure values can be found in the tables. With spring clamping cylinders, a clamping bolt or pull stud is screwed into the threaded bore of the piston adjusted and secured (on request also supplied as one piece). The required hydraulic assembly should be equipped with a pressure limiting valve, a switching-magnetic valve, a pressure gauge and a pressure switch unit.



## Fitting and adjustment

- slide cylinder into the locating hole provided (do not install), and make hydraulik connection
- bleed cylinder and pipe line at low pressure
- increase system pressure and hold; align the cylinder with the aid of ring nut (ZSF), with adjusting screw (ZDF-u) or spacer discs (ZDF-o) do the fine setting until the piston or clamping piece, backlashfree rests in place; secure pressure cylinder with cheese-head screw or secure the ring nut of the spring clamp cylinder
- drain system pressure; set release pressure for the required release stroke; check release stroke and adjust if necessary