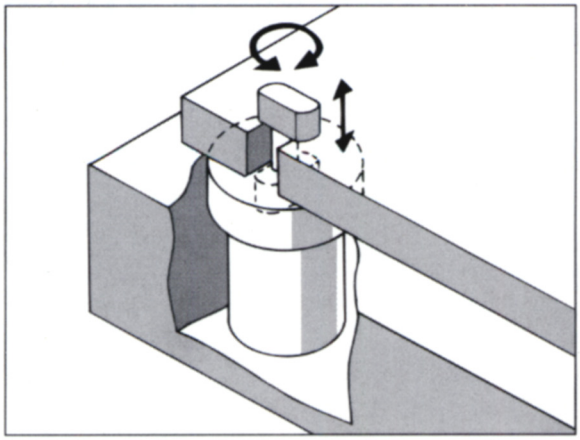
Hydraulic

Retracting Turn-Clamp Cylinder



Area of application

The hydraulic automatic turn-clamp cylinder, type HDHSZ, is designed for medium- to large-sized machines exerting a force of up to about 1,200 tons. It is mainly used for bottom die clamping (with and without clamping edge). For this purpose, T-slots or lock plates in the dies to be clamped are required.

The clamp cylinder is fitted in recesses in the press bed (or press ram) where it is fixed.

The clamp cylinder places little demand on the periphery of the machine. Its control can be easily combined in the existing machine control system.

Mode of operation

The double-acting hydraulic cylinder, hydraulically controlled, actuates the clamping process. In so doing, the tie rod is advanced from the housing of the clamp cylinder until it reaches the clamping position. The tie rod pinion, and hence the tie rod head, is rotated by means of a toothed rod until (by means of an edge bore) the clamping stroke is carried out.

The release process is carried out by reversing the hydraulic valve. After releasing the tie rod, the latter is rotated through 55° and then returns to the housing of the clamp cylinder.

Movement sequence for applying the clamping force:

- Driving out the tie rod
- 55° rotation
- Clamping stroke of the tie rod
  (release of the clamp unit in reverse order)

Distinguishing features

The hydraulically operated clamping cylinder directly produces the necessary clamping force. In so doing, the hydraulic pressure must be maintained throughout the clamping process (optional equipment with non-return valves and pressure switches recommended).

By installing the cylinder in recesses provided for it in the press bed/ram, the surface of the clamp cylinder ends flush with the surface of the press bed or the ram. In addition, the tie rod is withdrawn to the idle position below the surface of the ram or bed, thus avoiding any difficulty in changing dies.

Electrical control of the following functions (switches):

- Tie rod released, rotated into the release position and retracted (S1)
- Tie rod rotated into clamping position (S2)
- Pressure control by means of pressure switch on the hydraulic unit is advisable

Technical data

Switch:	2 inductive proximity switches; p-n-p normally open contact
Supply Voltage:	10-30 V DC
Cable length:	ca. 3 m

The automatic clamp cylinder type HDHSZ can be used for operating temperatures of up to 70°C, and a maximum operating pressure of 400 bar.

The clamp cylinder has a manually operated emergency actuation device.

Advantages

- Fully automatic, purely hydraulic operation
- Large clamping thickness tolerance
- Central control
- Highest standard of safety due to electrical control
- Low installation cost
- Low maintenance cost
- High clamping force, despite compact dimensions of the clamp cylinders

Construction

The clamp cylinder has a gunmetal-finish housing and a gunmetal-finish tie rod.

It is secured by four bolts, of strength class 10.9 according to DIN 912 (not included). The thread dimension depends on the type (see technical drawing).

1.700

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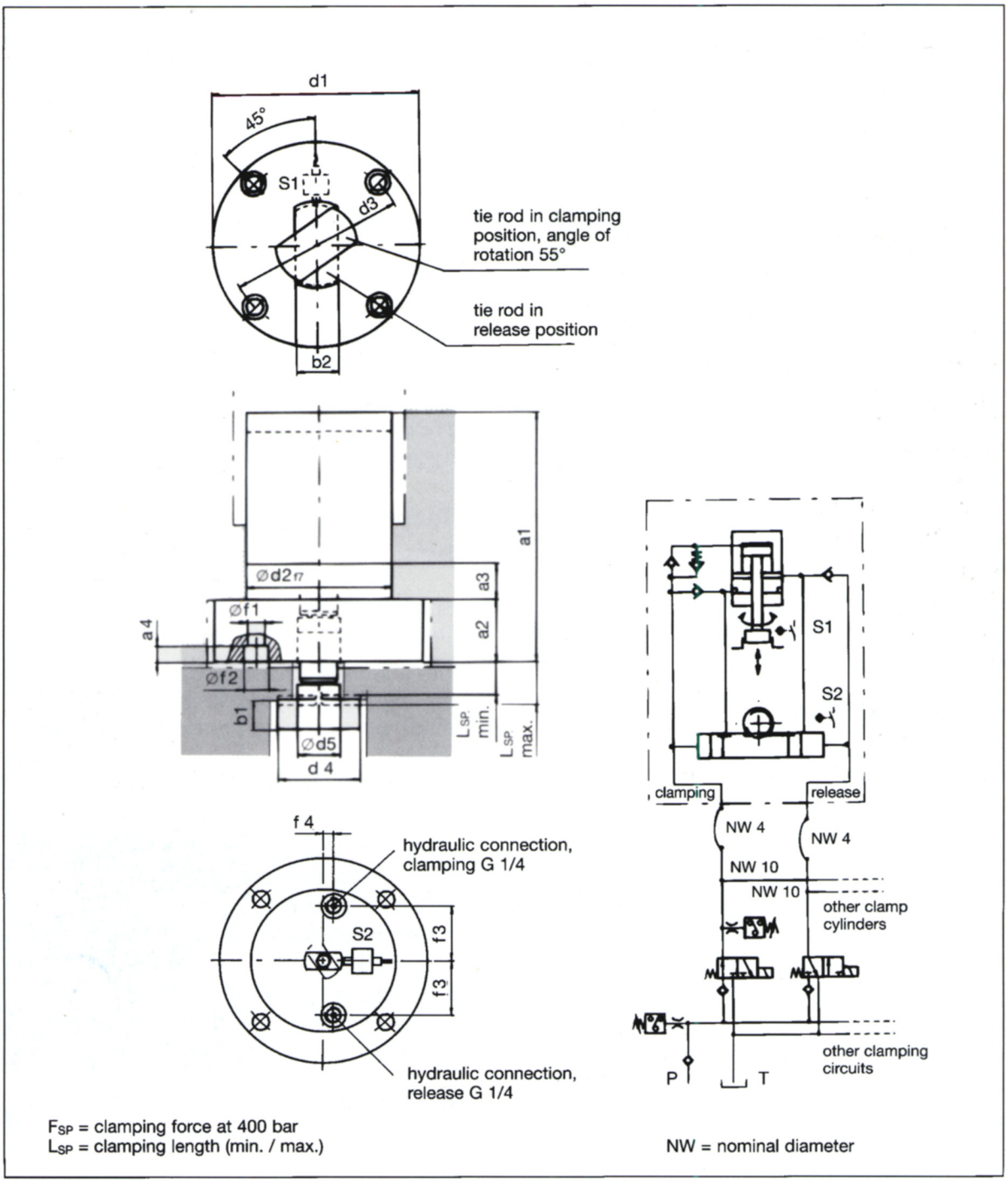

F_{SP} = clamping force at 400 bar
L_{SP} = clamping length (min. / max.)

NW = nominal diameter

Type	F_{SP} [kN]	L_{SP} min. [mm]	L_{SP} max. [mm]	Oil requirement [cm³] clamping/release	a1	a2	a3	a4	b1	b2	d1	d2	d3	d4	d5	f1	f2	f3	f4	Weight [kg]
HDHSZ 100	100	21	27	93	235	50	25	13	28	40	170	120	145	80	40	13	20	45	10	24
HDHSZ 200	200	26	32	176	285	70	25	21,5	35	60	215	145	175	100	60	22	33	45	10	46