

Area of application

The hydro-mechanical turn-clamp unit type DESV is designed for medium-sized and large presses exerting a force of ca. 500 tons and upwards. It is particularly suitable for top die clamping and for internal die clamping with multiple action presses.

The clamp unit is installed rigidly on the ram ledge. Alternatively, installation in the surface of the ram or bed is possible.

Its use requires dies that have lock plates or clamping edges with a U-recess.

Mode of operation

After a 90° rotation of the tie rod into the clamping position, a hydraulically actuated mechanically locking toggle mechanism transmits its clamping force to the tie rod.

Whereas the clamping force is developed mechanically, the rotary movement of the tie rod is produced hydraulically. The tie rod pinion rotates over a toothed rod unit, after a maximum 90° rotary movement, the tie rod reaches the clamping position. In this position, an edge control bore releases the hydraulic pressure to the clamping cylinder which actuates the toggle mechanism.

In the clamping position, automatic mechanical locking is carried out, and this can only be released by means of hydraulic pressure when unclamping.

Movement sequence for securing the slide:

- 90° rotation of the tie rod
- Clamping stroke of the tie rod
(release of the slide in reverse order)

Distinguishing features

The clamp unit is fitted with the well-proven Optima toggle mechanism. In this system, the clamping force required is transmitted by mechanical components which are actuated by low hydraulic pressure during

the clamping or release process. By so doing, the clamping force is independent of the compressibility of the pressure medium, operating temperatures and line losses.

The clamping force is continuously and directly monitored by the patented *Optima "Aktivator"*. For this to function, there must not be any hydraulic pressure on the clamp unit. In this type of control, the clamp units are connected to the machine control system via electrical switches (precision limit switches) and in the event of irregularities, bring the machine to a standstill.

In this clamping system, the tie rod projects from the surface of the ram or bed when unclamped.

Due to the standard fitting with a pre-clamping block, die thickness tolerances up to ± 0.5 mm are permitted.

Electrical control of the following functions (switches):

- Tie rod rotated into the unclamping position and released (S5)
- Continuous monitoring of clamping force (S6)
- Tie rod rotated into clamping position (S7)

Advantages

- Mechanical self-locking
- Maximum safety due to continuous monitoring of clamping force by means of the "Aktivator"
- Central control
- Hydraulic pressure only necessary during the clamping or release process
- High mechanical load capacity.

Construction

The clamp unit has a forged and gunmetal finish tie rod. The individual components of the toggle mechanism are made of hardened steels.

The clamp unit is secured by four bolts, of strength class 10.9 (not included). The thread dimension depends on the type (see technical drawing).

2.400

Technical data

Type		DESV 100	DESV 200
Nominal clamping force	kN	100	200
Set pressure	bar	100	100
max. load capacity	kN	125	250
max. operating pressure (min. set pressure + 20 bar)	bar	140	140
Release stroke	mm (ca.)	3,5	3,5
Die thickness tolerance	mm	+/- 0.5	+/- 0.5
Oil volume required (each process)	clamping	76	144
	release	76	144
Delivery rate per unit ¹⁾	l/min.	1.0 - 1.5	1.5 - 2.0
Weight	kg (ca.)	48	68
Hydraulic connections		see drawing	
max. operating temperature	°C	70	
Pressure medium		Hydraulic oil DIN 51524 - HLP (ISO DIN 51519)	
Viscosity		25 - 60 cST/40° C	
Filter		20 - 25 µm	

"If a pump with a higher delivery rate then necessary is used, the oil flow must be reduced by means of flow regulating valves or one-way restrictors.

Precision Limit Switches

Switching function: single-pole change-over snap -action contact

Supply voltage: 250 V AC

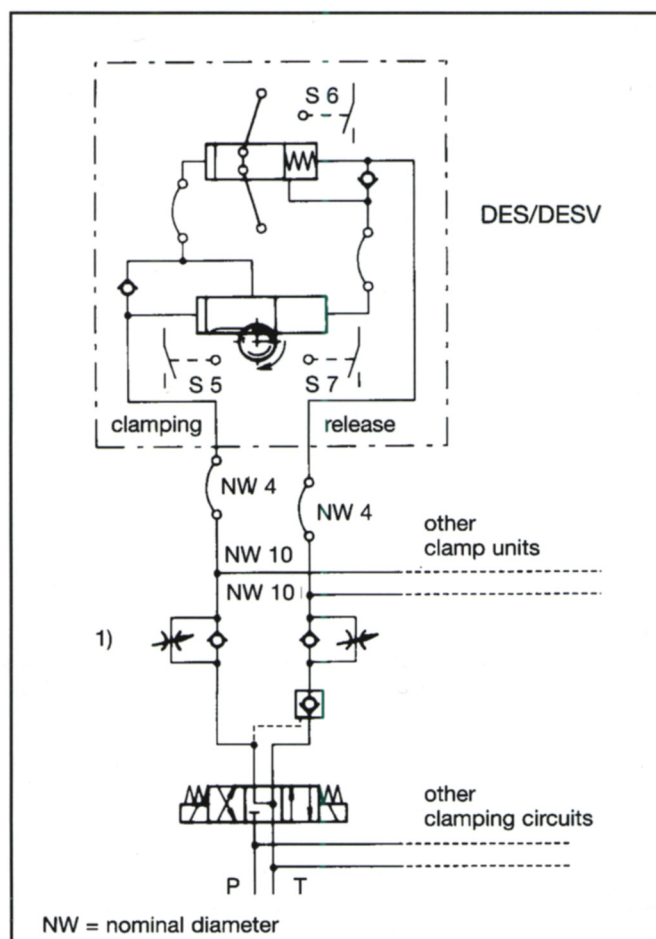
Switching capability: 2A/230 V AC
5A/ 24 V DC

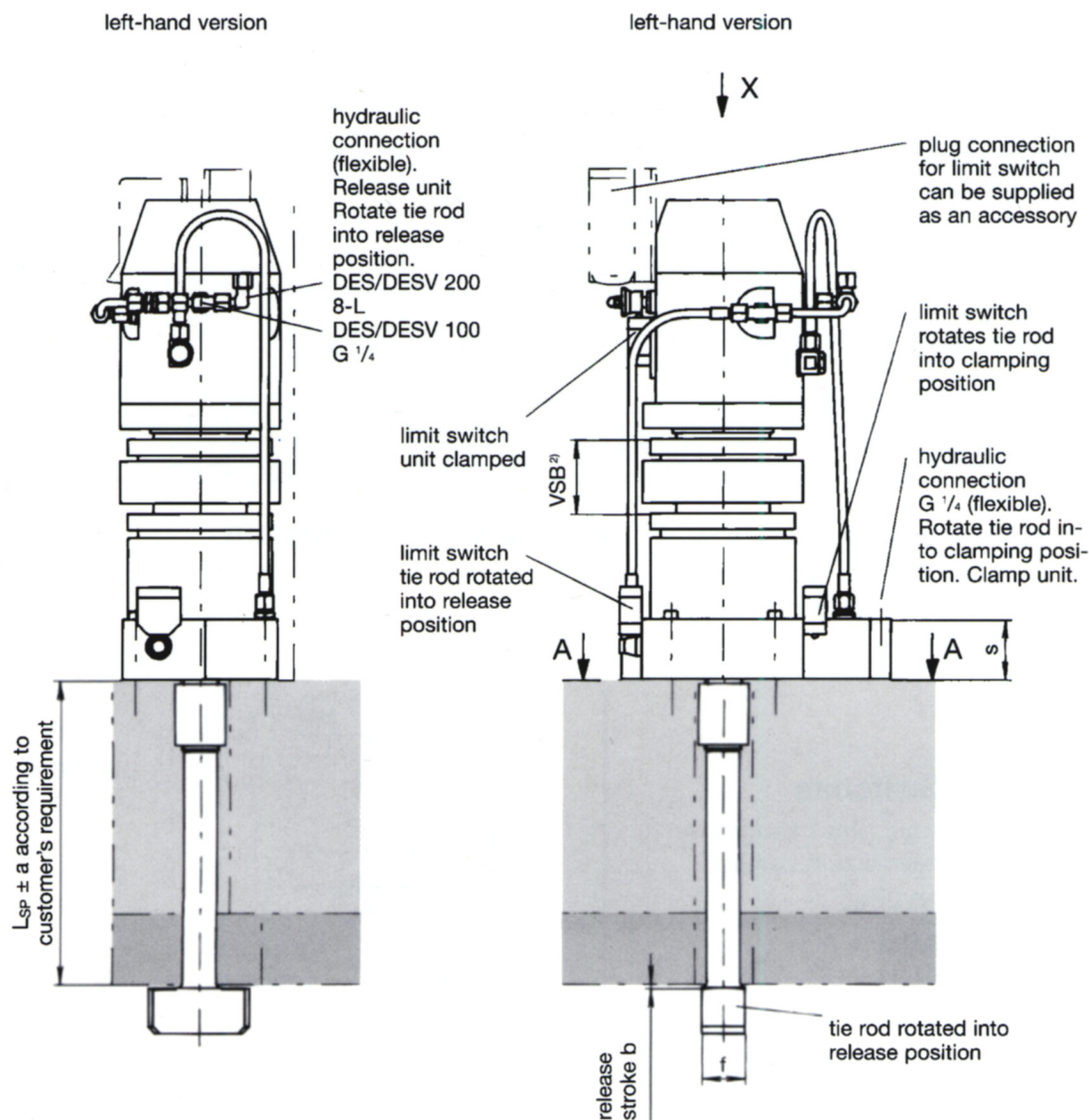
Contacts: screw connection

Cable lead-in: armoured cable 9

For a water- and oil-tight installation, we recommend cable screw joints, in conjunction with a protective sleeve.

Hydraulic circuit diagram



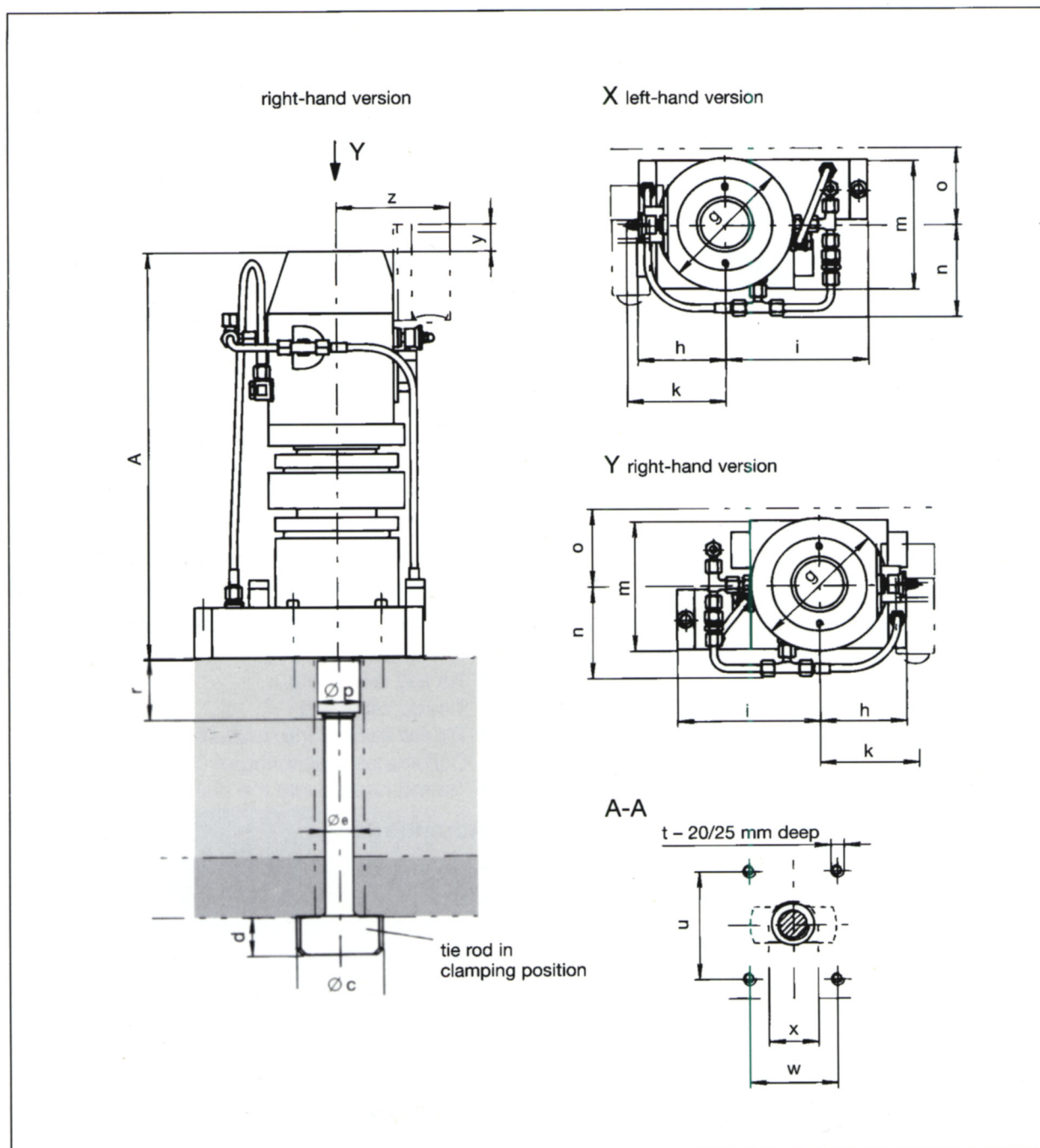


F_{SP} = clamping force
 F_B = load capacity

¹⁾ For a greater clamping length tolerance (± 6 mm) the DESA version can be supplied on request.

²⁾ If a clamping length tolerance of ± 0.2 mm is sufficient, please ask for type DES (without pre-clamping block).

Type	F_{SP} [kN]	F_B [kN]	A max.	a ¹⁾	b ca.	c	d	e	f	g	h	i
DESV 100	100	125	390	$\pm 0,5$	3,5	80	30	32	36	130	91	119
DESV 200	200	250	485	$\pm 0,5$	3,5	98	45	32	42	155	100	162



The company reserves the right to make technical changes.

k max.	m	n	o min.	p	r max.	s	t	u	w	x	y	z	Weight
112	125	92	75	38	50	50	M8	92	108	40	20	162	48
114	150	107	90	49	70	60	M8	125	100	50	32	166	68